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DE FORMATIONE OVI ET PULLI

BY

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FIG. 1.—6½ hours.

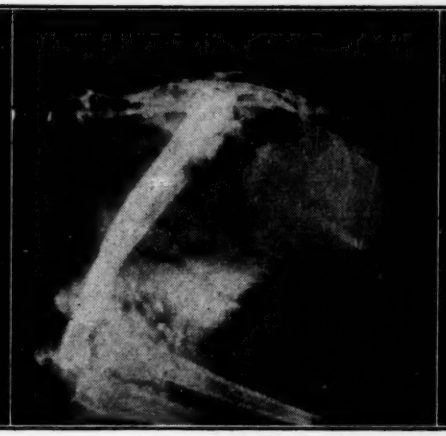

FIG. 2.—9 hours.

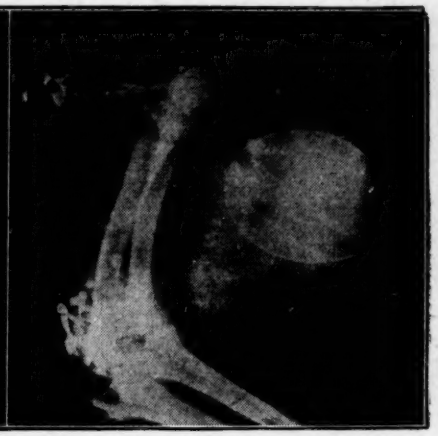

FIG. 3.—12 hours.

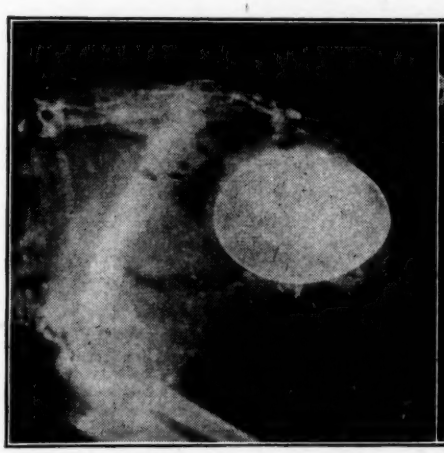

FIG. 4.—23½ hours.

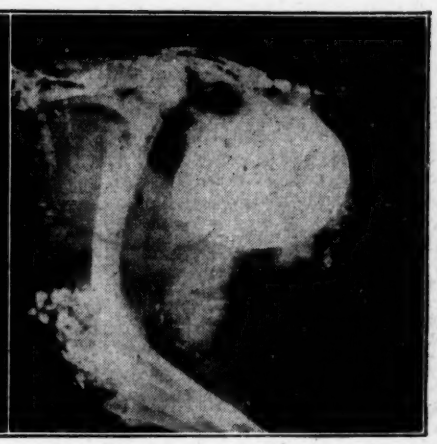

FIG. 5.—25½ hours.

The year 1621 saw the publication at Padua of a most elaborate treatise on "The Formation of the Egg and of the Chick" by "late the very celebrated anatomist of Padua, Hieronymus Fabricius of Aquapendente," who died in 1619. In 1942 Howard B. Adelmann, Professor of Histology and Embryology in Cornell University, published his scholarly translation with a facsimile edition in the Latin of the two classical works of Fabricius, *De Formatione Ovi et Pulli* and *De Formato Foetu*. This book is a magnificent contribution both to the history and to the philosophy of medicine.

The school of anatomy at Padua produced a race of giants—Alexander Benedictus, Andreas Vesalius, Realdus Columbus, and Fallopius. The death of Fallopius in 1562 was followed by three years of temporary appointments, but in 1565 Fabricius was appointed to the chair of surgery and was enjoined to add instruction in anatomy to his other duties. Between 1565 and 1584 his salary was increased sixfold, from 100 florins to 600. In 1600 Fabricius was appointed Professor Supraordinarius in Anatomy, with an increased stipend of 1,000 scudi, and instruction in surgery was entrusted to Casserius. Fabricius retired in 1613 from active teaching and died in 1619 at the age of 82 or 86, for the year of his birth is given as 1533 or 1537.

Subsequent to Aristotle, Fabricius gave the first analysis of the life history of the egg, based on observation of the successive stages. He described in greater detail the two twisted cords of albumen, the chalazae, which tether the yolk. He recognized that the egg rotates as it descends through the oviduct, and that the albumen first deposited is thicker than subsequent layers. He was most cautious when describing the formation of the shell. He asked the question: "Why does the egg emerge blunt end first?" He described accurately the "air space" at the blunt end of the egg, noted its slight eccentricity, its increase in size on keeping, and its considerable increase during incubation.

Recently Mr. J. R. G. Bradfield, of the Department of Zoology, has studied the problem of the laying of the egg in the domestic hen. The work was carried out in the School of Anatomy with the active assistance of the

radiographer, Mr. J. A. F. Fozzard, who was awarded the Rodman Medal of the Royal Photographic Society for the excellent photography here displayed. Lateral radiographs were taken at stated intervals and have added to our knowledge, but the significance of all the facts still awaits clarification.

It is known that about 26 hours elapse between the laying of successive eggs. This period of 26 hours is subdivided roughly into:

Half an hour between laying one egg and discharging the next ripe ovum with its yolk from the surface of the single left ovary. Half an hour in passing through the abdominal ostium or funnel of the oviduct. Three hours in the magnum of the oviduct, where the albumen is secreted over the rotating yolk. One hour in the isthmus of the uterus, where the thin shell membrane is secreted. Twenty and a half hours in the uterus, where the calcareous shell is secreted.

The earliest trace of calcium deposition is first visible as a very thin hair-like line on the negative (as distinct from the print) about 6½ hours after laying the last egg (Fig. 1). At 9 hours the density is increased (Fig. 2). At 12 hours the outline of the shell is distinct, with the pointed end of the egg in advance (Fig. 3). At 23½ hours after laying the last egg the pointed end of the new egg is still in advance (Fig. 4). Now occurs one of the strangest movements. During the 24th and 25th hours the egg rotates on its vertical short axis in a horizontal plane so that the pointed end is up-stream and the blunt end presents to the cloaca (Fig. 5). It is not yet known whether this late rotation is constant in direction.

How is this rotation accomplished, and why? The egg is not finally laid in the 26th hour by mass peristalsis. It is not extruded by contraction of the uterus in the manner of a bolus moving along the intestine. The terminal part of the uterus with the contained egg can be seen prolapsing through the cloaca. The uterus is then withdrawn, leaving the egg outside, covered by a viscid fluid which hardens or dries immediately on contact with air. As Fabricius says, "This you will easily observe if you keep a hen at home and dexterously catch her egg in your hand as it is laid." And again, as evidence of the age of the art of palpation, Fabricius says: "In a live hen, too, an egg provided with a hard shell may easily be palpated superficially. Housewives daily make this test when they try the hardness of an egg with their fingers from outside the body in order to find out whether or not the hen is soon going to lay."

It is suggested that the egg rotates and the hemispherical blunt end is presented in advance because it has the surface area which conforms most snugly to the mucous membrane of the dilated terminal portion of the uterus. Whereas all raised water tanks in this country are built with flat bottoms, our American cousins learnt long ago to build them with hemispherical bottoms. The area of the plane circular floor of a cylinder is πr^2, but the area of the hemispherical bottom is $2\pi r^2$. In short, the latter tank can stand twice the head of water of the former or, alternatively for the same head, the material can be reduced to one-half the thickness of the former. The presenting blunt end of the egg gives the better arrangement for avoiding both rupture of the egg and rupture of the uterus.

In 1873 the Rev. Samuel Haughton, M.D. of Trinity College, Dublin, applied one of the celebrated problems of Lagrange to the act of parturition. It is the problem of the equilibrium of a flexible membrane subjected to the action of given forces.

$$P = T \times \left(\frac{1}{r_1} + \frac{1}{r_2}\right)$$

where P is pressure, T is tensile strain in the tangential plane, and r_1 and r_2 are the radii of curvature. At the presenting membranes the two radii are almost equal, and so $P = \frac{2T}{r}$.

Haughton calculated that the surface of the gravid uterus is 270 sq. in. (1,765 cm.²), the volume 402 cu. in. (6,588 cm.³), the weight of muscle in the uterus 1.56 lb. (0.7 kg.), and the maximum hydrostatic pressure inside the uterus produced by contraction of the muscle 3.4 lb. per sq. in. (239 g. per cm.²). Matthews Duncan and Tait in 1868 had found experimentally that the mean rupturing pressure of the membranes was 1.2 lb. per sq. in. (84 g. per cm.²). In short, the uterine muscle can always rupture the membranes, and in general has three times the strength necessary.

In the case of the hen the uterus is confronted with the passage of a solid egg, and considerations of hydrostatic pressure of the liquor amnii do not satisfy the circumstances. There have been some measurements of the tensile strength of the vitellin membrane surrounding the yolk, and Moran recently calculated it as 4,500 dynes per sq. cm., or 0.06 lb. per sq. in. There are but few estimates of the tensile strength of the two distinct membranes next to the egg shell, or of the shell itself. Romanov in 1926 stated that the average thickness is 0.311 mm. and the breaking strength 4.46 kilos, or 9.8 lb.—somewhat greater than the average man can apply to the egg when held in the palm and fingers.

Haughton said: "Happy is the man whose mother possessed the hereditary tendency to form no more uterine muscle than was absolutely necessary to push him into the world.". In similar Lamarckian vein may we say, Happy the chick whose mother hen possesses the necessary uterine muscle to rotate the egg in the uterus, deliver it blunt end first, and yet avoid both rupture of the egg shell and of the maternal uterus.

It is possible that Haughton's earlier years may have been one long Lent, for his father, James Haughton, philanthropist, friend and supporter of Father Mathew and O'Connell during the great potato famine of 100 years ago in Ireland, was also president of the Vegetarian Society.

The domestic hen, who, like the cow, has become a foster-mother of the human race, still presents problems in anatomy, physiology, and biochemistry. So does the cow as regards the mysteries of lactation. It is well to think of this at a time when Easter eggs are in short supply.

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The National Association for Mental Health has recently published its report for the year 1946–7. It gives an outline of the Association's many activities, which include lectures to medical practitioners, teachers, social workers, and many special organizations; research into the social adaptation of children brought up in institutions, carried out under the direction of Dr. Bodman; and proposals for the International Congress on Mental Health to be held in August. The Association has charge of four homes for mentally defective children at Rhyl, Bognor Regis, Basingstoke, and St. Leonard's-on-Sea. It runs nine hostels for county agricultural committees. The inmates are selected for their suitability for agriculture, and reports on the value of their work are enthusiastic—such comments as "the most reliable form of labour" often being heard. The hostels altogether accommodate 300 men in Gloucestershire, Hampshire, Shropshire, and Yorkshire. The Association's journal *Mental Health* will now appear four times a year and the subscription has been raised to 5s.

ENVIRONMENTAL FACTORS INFLUENCING HEALTH AND EFFICIENCY IN WARSHIPS*

BY

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When the designers plan the allocation of space and the installation of equipment in warships they have to effect a satisfactory compromise between many requirements, including those for providing in one ship an optimum number of useful weapons and detecting devices, high-powered engines for achieving high speeds, armoured protection against bombs or shells, watertight compartments to enable damaged ships to remain afloat, and, lastly, living and working conditions under which men may remain healthy and work efficiently.

It is one of the tasks of the Royal Naval Medical Service to advise the Staff when this balance of conflicting interests may act unfavourably towards the men and impose adverse effects on their health or efficiency. It will be seen that in the past the acceptance of standards which fell short of those required by the highest dictates of environmental hygiene was unavoidable at times; but the circumstances were such that the alternative would have been unacceptable loss of fighting efficiency in other ways, or a reduction of the safety factor.

In recent years the attention of those responsible for the efficiency of the armies, navies, and air forces of the World Powers has been drawn repeatedly to the fact that the power of modern weapons and the efficiency of fighting machines may be reduced because of neglect to consider sufficiently the characteristics of the men concerned with their operation. This has led to a renewed stiffening of opinion concerning the relative importance of human factors in the design of equipment. These factors may be examined broadly in relation to the physical or psychological ability of the men to carry out their various tasks, or in relation to limitations imposed on them by the nature of their environment. In practice these considerations are usually merged together, and to study one it is necessary to have a good working knowledge of the other.

When war was declared in 1939 the Navy had not for 130 years conducted a major campaign which entailed ships remaining continuously at sea in tropical waters, and the constructional features and design of ventilating arrangements were mainly based on experience gained in operating in temperate or subtropical waters. Although the ill effects of nutritional deficiency and infectious disease, which had ravaged the fleets in the past, were rarely seen, warships were still desperately crowded when they carried their full war complements, and the enormous power generated by their machinery produced great quantities of heat below decks which were hard to control by normal ventilating methods.

The efficiency of ships' ventilation systems was determined until recently by measurement of their ability to keep the level of carbon dioxide in the air of occupied compartments below 7 parts in 10,000. Compartments ventilated to accord with this standard were found, however, to be uncomfortably warm in the Tropics, and in 1937 the decision was made that ventilation arrangements would be designed thenceforward with the aim of maintaining an equable thermal environment under the climatic conditions generally imposed on warships, a decision easy to make but difficult to carry out.

The early years of the war saw a tightening up of precautions for increasing the watertightness of ships damaged in action by increasing compartmentation and reducing communications between compartments, such as those afforded by ventilation trunking deemed to be unessential. These developments, combined with the "black-out," further complicated the task of those who had to provide satisfactory living and working conditions.

While the main activity lay in home and northern waters the increasing warmth in ships did not hamper operations, but the early Mediterranean campaigns gave warning that when the Fleet operated in the Tropics conditions incompatible with reasonable efficiency might be encountered in certain situations. Thus in 1944, when the Japanese campaign became imminent, the Royal Naval Personnel Research Committee of the Medical Research Council, which had previously devoted its attentions to problems of operational divers, anti-aircraft defence, cold-weather clothing and body protection, was directed to examine the environment of men in warships in the Tropics and to report on the probable effect on fighting efficiency.

This direction was expanded later to include more general problems, conditions in submarines, and problems of the thermal environment in temperate and northern waters. The specialized problems of the naval airman in the air were dealt with by the Flying Personnel Research Committee of the Air Ministry and will not be discussed here. Much of the work subsequently carried out has been reported or is to be reported elsewhere; other studies are not yet complete. It is therefore possible to refer only to the interim conclusions of these investigations.

Surface Ships

It is convenient to consider the various living and working spaces of warships in separate groups according to the activities of the men who occupy them, and the complexity of the problem is indicated by the varying nature of the average thermal conditions. The observations described below were made during a four-month period in 1944 in eleven ships of the Eastern Fleet, including battleships, aircraft carriers, cruisers, and destroyers.

Thermal Environment

The thermal conditions below decks were measured in accordance with the recommendations of Bedford (1946), and were described in terms of the "normal" effective temperature as well as the more conventional dry- and wet-bulb temperatures. The effective temperature may be derived simply, if the air movement and dry- and wet-bulb temperatures of the air are known, from the charts constructed by Houghten and Yaglou (1923) in the United States. This scale of warmth expresses as a single figure the summated effects on the comfort of lightly clothed human beings of air temperature, humidity, and air movement. At the higher ranges of warmth it does not afford an accurate index of the physiological effects of the possible combinations of these three factors, and the practicability of replacing this scale with a concept based more closely on the physiological and psychological reactions of individuals is being examined. During the war effective temperature was the most suitable common index available, and over the range of conditions generally encountered it was satisfactory for our purpose.

Houghten and Yaglou also constructed a "basic" effective temperature chart which referred to the comfort sensations of men stripped to the waist. Warship crews in action, however, generally wear overalls and anti-flash hoods and gloves to protect them against flash burns. The normal effective temperature chart was therefore used in describing the measurements made on this survey.

*The basis of a paper given to the Society of Medical Officers of Health (Services Hygiene Group) on Nov. 28, 1947.

Allowance was made for the effects of radiant heat where these were important by making globe-thermometer measurements also and computing the mean radiant temperature of the surroundings; or, alternatively, by applying a correction to the effective temperature scale by substituting the globe-thermometer readings for those of the dry-bulb thermometer when reading the chart.

Bedford (1948) has pointed out that recent American studies on the effects of radiant heat on rectal temperature showed that "corrected effective temperature" fitted the experimental findings when the average rectal temperature of the subjects of the experiments was 100° F. (37.8° C.), over-corrected for radiation under more severe thermal conditions and under-corrected for it when the environment was less severe. The concept of corrected effective temperature may be used, therefore, only to give an approximation of the added strain imposed if heat radiation is added to the other thermal factors of a man's environment.

The standards provisionally accepted by the Admiralty since 1944 in planning warship ventilation for the Tropics state that 80° F. (26.7° C.) effective temperature (or corrected effective temperature if radiant heat is a factor) is the upper desirable limit for thermal conditions in spaces where men must live and work, and that 86° F. (30° C.) effective temperature (or corrected effective temperature) is the upper acceptable limit.

It is necessary to interpret these standards with considerable latitude in considering different compartments. The severity of thermal conditions should be assessed in relation to the energy expended by the men exposed, to the complexity of their mental tasks, and to the clothing they must wear. Thus men handling ammunition for the heavy guns would become inefficient in a less severe environment than would engine-room watch-keepers, whose physical tasks might be light in comparison; or a radar operator watching for the faint signals on the display might fail to observe the presence of a ship or aircraft in the vicinity, although an engine-room watch-keeper observing the more plainly displayed dials and indicators in the engine-room under similar thermal conditions would be less liable to make an error; or, again, submarine crews stripped to the waist when submerged in the Tropics could sustain without loss of efficiency severer thermal conditions than the more heavily clothed crews of surface ships in action.

TABLE I.—*Average Thermal Conditions in Living and Working Compartments in Surface Ships of the Eastern Fleet (1944)*

	Normal Effective Temperature	Dry-bulb Temperature	Wet-bulb Temperature	Air Movement per Minute	Relative Humidity	No. of Observations
Mess decks	84·0° F. (28·9° C.)	90·0° F. (32·2° C.)	82·0° F. (27·77° C.)	100 ft. (30·48 m.)	71%	947
Machinery spaces	88·7° F. (31·5° C.)	102·7° F. (39·27° C.)	87·7° F. (30·94° C.)	468 ft. (142·65 m.)	55%	359
Gunnery control compartments	86·5° F. (30·28° C.)	95·5° F. (35·28° C.)	84·2° F. (29° C.)	172 ft. (52·42 m.)	61%	364
Gun-turret lower quarters	86·6° F. (30·33° C.)	91·9° F. (33·28° C.)	84·9° F. (29·39° C.)	60 ft. (18·29 m.)	75%	125
Radar offices	86·9° F. (30·5° C.)	97·7° F. (36·5° C.)	83·8° F. (28·77° C.)	160 ft. (48·77 m.)	56%	59
Electrical spaces	89·5° F. (31·95° C.)	104·7° F. (40·4° C.)	82·6° F. (28·11° C.)	147 ft. (44·8 m.)	39%	81
Workshops	87·5° F. (30·83° C.)	100·3° F. (37·33° C.)	83·7° F. (28·66° C.)	193 ft. (53·83 m.)	51%	55
Sick bays	83·0° F. (28·33° C.)	90·9° F. (32·72° C.)	82·1° F. (27·77° C.)	239 ft. (72·85 m.)	68%	82
Communication offices	85·8° F. (29·88° C.)	95·9° F. (35·5° C.)	83·9° F. (28·83° C.)	163 ft. (49·68 m.)	61%	168
Galleys	87·4° F. (30·77° C.)	97·5° F. (36·39° C.)	84·2° F. (29° C.)	192 ft. (58·5 m.)	58%	168

The average dry-bulb temperature on deck was 83° F. (28.3° C.) and the average wet-bulb temperature 77° F. (20° C.) when these measurements were made. The sea temperature varied between 82 and 88° F. (27.8 and 31.1° C.). In the living compartments (mess-decks) the average wet-bulb temperature was 82° F. and the average effective temperature 84° F. (28.9° C.). In the main working spaces of these ships, and in some of the compartments which were especially important in action, the average effective temperature varied from 85 to 90° F. (29.3 to 32.2° C.). In certain spaces, such as machinery compartments, galleys, and workshops, it was found that for nearly 800 measurements made the mean radiant temperature of the surroundings lay between 90 and 120° F. (32.2 and 48.9° C.) for 66%, and between 120 and 150° F. (48.9 and 65.6° C.) for 24%; and "corrected" effective temperatures between 95 and 100° F. (35 and 37.8° C.) were encountered at times.

The thermal conditions in ships in temperate waters gave less cause for concern. In northern waters men below decks were generally able to carry on with their work without loss of efficiency, and remained healthy. The men on deck were reliant on carefully designed clothing for protection against cold, wet, and wind. The thermal environment here was apparently less critical than in the Tropics, but the effects of conditions in the Arctic regions have not been the subject of detailed investigation in recent years.

Accommodation

Sir Sheldon Dudley, in his preface to *Environmental Warmth and its Measurement* (Bedford, 1946), stated: "The problem to be solved by research and experiment can be stated briefly, thus—What is the ratio of the space allocated to the human element, to the space allotted to the mechanical element of the total fighting machine (ship plus ship's company) which will make the most efficient engine of war?"

A review of the space available for a community of nearly 8,000 men who were living on the mess decks of two battleships, four cruisers, an aircraft carrier, and an escort carrier in the Eastern Fleet showed that less than 150 cu. ft. (4.25 m.³) of space per man was provided on the mess decks for 69% of these men and their belongings and less than 200 cu. ft. (5.66 m.³) for 92%. The height of the deckhead is usually about 8 ft. (2.4 m.) in warships. Thus the majority of ratings were entitled to a floor area of less than 19 sq. ft. (1.76 m.²). It is interesting to note that Dudley (1928) reported similar arrangements for the crew in H.M.S. *Dunedin*. Satisfactory air hygiene was obtainable under these congested conditions by high ventilation rates below decks achieved by powerful fans for supplying fresh air to compartments and others for drawing stale air away from them.

The above figures may be compared with wartime standards in naval barracks ashore, which allowed a minimum of 45 sq. ft. (4.18 m.²) of floor space per man and an "austerity" standard of 30 sq. ft. (2.79 m.²) if double-tiered bunks were used for sleeping (Dudley, 1943). The men slept in hammocks in temperate waters, but in the Tropics many found these too hot, and light camp-beds were issued as well, so that up to 70% of ships' companies slept in the open air on the upper deck.

Chemical Factors

The powerful ventilation systems of modern warships prevent undesirable accumulation of products of respiration such as carbon dioxide. Chemical factors are not therefore generally of importance. Reference has been made elsewhere (Ellis, 1944, 1947b) to circumstances which may result in casualties when, as a result of explosions or faults in machinery, contamination of the air of compartments, by nitrous fumes, carbon monoxide, and certain volatile chemicals used as refrigerants and in fire extinguishers, may occur without the knowledge of the occupants.

There is one exception to the above generalization. The magazines and ammunition-handling spaces of ships in action are hermetically sealed to prevent the flash of explosions blowing up their dangerous contents. In war these compartments may be heavily manned for many hours, or even days, and after a period (10 to 15 hours) without ventilation it becomes necessary to guard against undesirably high accumulations of carbon dioxide. The rate of accumulation varies with the size of the compartments, the number of occupants, and the energy expended by them. At an earlier time complaints may be made of headaches and general malaise due to inhaling the volatile

decomposition products of cordite. These effects have been studied by Thomson and Weiner (1947), who have shown that men handling cordite charges are more severely affected in hot humid atmospheres. The gun-crews were clothed in overalls, fabric hoods, and long gloves to protect them against flash-burns. Ammunition compartments were also critically warm and humid in the Tropics (Table I). It may be concluded that ammunition handlers carried out their arduous tasks in the face of considerable difficulties.

Bacterial Factors

The increasing use of air-conditioning equipment in warships led to proposals for economizing in the weight and and size of ventilation trunking by effecting considerable reductions in the volumes of fresh air to be supplied to air-conditioned compartments; for the former lavish supplies were based on the need for limiting the thermal conditions, which would now be controlled by refrigeration. It was asked, therefore, if decreasing fresh air supplies and increasing air recirculation would cause undesirable additions to the bacterial content of the air of compartments.

Several serious epidemics of upper respiratory tract diseases which had occurred in ships at critical stages of the war, and the annual rate for pulmonary tuberculosis in the Navy, which had been double that in the other Services for many years (Dudley, 1941), were additional reasons for examining these proposals to reduce fresh air supplies with some precision.

A preliminary survey of conditions in a newly built cruiser and a submarine (M.R.C. Special Report Ser., No. 262) provided interesting data which permitted a comparison to be made between the bacterial environment of naval ratings and that of the civil community. About 600 "two-minute" samples of air were taken with a slit sampler (Bourdillon, Lidwell, and Thomas, 1941) in the cruiser during several days at sea under action conditions and while lying in Scapa Flow.

Previous studies by the Medical Research Council had suggested that under ordinary domestic or working conditions bacterial counts made in this way should not exceed 50 bacteria-carrying particles per cubic foot (0.028 m.³) of air, although much lower levels were desirable in hospital wards, dressing-stations, or operating theatres. It was found that when men were engaged in quiet occupations on the mess decks the above level was not usually exceeded, but it was when there was much activity, such as sweeping up after meals, turning out of hammocks in the early morning, and crowding into the bathrooms before breakfast. These findings indicated a need for making improvements, but did not compare unfavourably with similarly crowded situations ashore. In the critical action-compartments, such as the crowded gunnery-control positions beneath the armoured deck, surprisingly high standards of air hygiene were achieved by the ventilation provided.

In the air-conditioned compartments investigated recirculation of the air did not lead to a build-up of bacteria during two-hour periods. This aspect requires further investigation, and it is also desirable to repeat in the Tropics the general study in ships.

Submarines

Although the first submarine is said to have been navigated in the Thames in the time of James II, they were not developed as naval weapons until the twentieth century, when in two wars they nearly proved to be decisive weapons in the hands of our enemies. British submarines were also a most effective naval weapon, and, in view of the small numbers of men employed, an economical one too. In the Mediterranean alone a total force which rarely exceeded 1,000 men—or the ship's company of a single cruiser—sank between one and two million tons of Axis shipping and paved the way for the success of the Eighth Army by disrupting enemy supply lines. The Germans were late in appreciating that the effectiveness of a submarine on long patrols depended on the provision of an optimum environment for the crew. These environmental problems differ in certain important respects from those of surface ships.

Thermal Environment

When a submarine is submerged and propelled by the electric motors the conditions are ideal for securing a high degree of control of the thermal environment by insulating the pressure hull to prevent large heat transfers between the sea water and the internal surface of the pressure hull, and by using refrigerating machinery for cooling and dehumidifying the air in the Tropics and heating elements and radiators for warming it in the Arctic.

A series of observations made just after the end of the war in a submarine carrying out an Arctic and tropical cruise showed that, even when pressure-hull insulation was only partially fitted, satisfactory control of the thermal environment could be achieved during a diving patrol in tropical conditions off the Orinoco, where the upper desirable thermal level of 80° F. (26.7° C.) effective temperature was rarely exceeded.

When a submarine is on the surface the main engines draw large amounts of air down the conning-tower hatch and aft to the engine-room. In northern waters the crew are probably colder than they would be in surface ships in the same area, while in the Tropics the introduction of so much fresh air reduces the effectiveness of the air-conditioning plant. In rough seas and foul weather the added inconveniences of motion sickness and exposure to cold and wet which handicap many of the crew on surface patrols are practically eliminated when the submarine is submerged.

Accommodation

The cubic space allocated for sleeping and living quarters in large submarines varies from just above to just below 100 cu. ft. (2.83 m.³) per man. Thus the average space available for a man and his belongings is rather less than in surface ships; but the separate messes are divided from each other only by curtains or light partitions, and when the ventilation fans are circulating the air it is more reasonable to consider the entire submarine as a single compartment. It is then found that the volume of breathable air available for each man when the submarine is submerged will lie somewhere between 300 and 500 cu. ft. (8.49 and 14.16 m.³) in different classes of submarine, and, provided the sleeping billets are separated by adequate intervals, this will be more important for providing satisfactory air hygiene than the amount of space actually allocated to each man in each mess.

The best use is made of the space available by ingenious designs of fittings and furniture, and the degree of comfort obtainable is surprisingly high under the circumstances.

Chemical Factors

When a submarine is submerged carbon dioxide will accumulate in the air, which will at the same time be depleted of oxygen by the respiratory requirements of the crew. The rate at which these changes occur will vary with the volume of air available in the different types of submarine, the numbers of the crew, and the energy expenditure of the latter in the duties they must perform.

The careful control of both these factors is essential. The features of oxygen lack are said to include deterioration in visual acuity when the percentage at one atmosphere falls below 19% and, at lower concentrations, impairment of judgment and reasoning faculties, possibly associated with confident unawareness of the dangers involved and a feeling of well-being. Narcotic effects may also result from breathing atmospheres with a high content of carbon dioxide (5 to 10%), and varying degrees of headache and malaise occur in some people after breathing lower concentrations for a few hours. In addition, after regaining fresh air, unpleasant "after-effects" of this type may be experienced.

The time factor is of considerable importance. Past standards for achieving satisfactory air purification have been based on the assumption that periods submerged would not usually extend beyond one to two days at the outside and were usually less than 24 hours. In the event of more prolonged exposure these physiological effects will require re-examination. In the control of these factors reliance is laid on devices for absorbing carbon dioxide and generating oxygen, and on indicators

which keep the commanding officer informed of the chemical composition of the air.

Atmospheric hazards, which occasionally may cause casualties in submarines, include poisoning by carbon monoxide evolved from torpedoes which "run hot" in the torpedo-tubes, battery gases such as chlorine, and volatile chemicals used as refrigerants or in fire extinguishers. The breathing apparatus provided to enable men to escape from sunken submarines is an excellent ready-to-hand self-contained breathing apparatus for rescue or repair work in compartments containing these gases. The refrigerant "freon" (dichlorodifluoromethane) which is generally used in submarines is innocuous if inhaled. Such accidents are uncommon nowadays.

Pressure Changes

During long periods submerged, leaking high-pressure air, and ballast adjustments concerned with maintaining the ship on a level keel, may lead to considerable increases in atmospheric pressure. The physiological effects are not important provided that the partial pressures of oxygen and carbon dioxide are known and suitable precautions are taken before opening the conning-tower hatch.

In 1944 and 1945 the Germans fitted to their submarines a device developed by the Netherlands Navy which they called a "Schnorkel." This consisted of a hollow mast which could be raised above the surface to provide air supplies for the interior while the main hull of the submarine remained submerged. The schnorkel supply duct was a relatively narrow tube, and the demands of the engines for air were heavy, so the pressure within these submarines was generally depressed to varying degrees below one atmosphere, and in a choppy sea the intermittent occlusion of the air inlet by a valve fitted to prevent flooding would cause fluctuations of the internal pressure. By the use of this device U-boat commanders remained continually submerged for many weeks while avoiding detection, and it would appear that, provided the machinery was suitably designed and the device was wisely used, ill-effects on the personnel did not result.

Bacterial Factors

During the survey of air-borne bacteria described above 80 two-minute samples of air were collected in a submarine during a day at sea off the Orkneys. It had been suggested previously that the difficulties of ventilating submerged submarines might lead to undesirably high bacterial contamination of the air, although it had often been observed that on long patrols submarine crews were unaffected by serious epidemics of upper respiratory tract infections.

It was found that, under a wide variety of probable operating conditions, the upper desirable level of 50 bacteria-carrying particles per cubic foot of air was exceeded only when there was considerable human activity near to the slit sampler. This excellent state of affairs was attributed to the good ventilation obtainable on the surface and to the recirculation of the submarine air through the engine-room when submerged, where the bacteria-carrying particles adhered to the oily bulkheads and machinery.

The Effect on Health

The health of men serving in home and northern waters did not give rise to undue concern during the earlier years of the war, but when the majority of ships were transferred to the Indian Ocean and the Pacific in 1944, before the Japanese campaign, it was considered desirable to obtain an overall picture of the reaction of the men to their new environment. Reports were requested from the medical officers of the ships in the Eastern Fleet and later in the British Pacific Fleet. Their examination showed remarkable similarity in the state of health of the men in the two Fleets.

In the Eastern Fleet it was found that on the average each month, for every 100 men in ships afloat, 29 attended the sick bay as out-patients and 5 were made unfit for duty because of ill-health. In the British Pacific Fleet the corresponding figures were 28.6 and 4.6. The more common conditions which caused the men to report at the sick bay are shown in Table II.

TABLE II.—*Common Causes of Ill-health in the Tropics: Case Incidence per 100 Man-months*

	British Pacific Fleet (March–May, July–August, 1945)				Eastern Fleet (February–September, 1944)			
	Warships (58)	Depot Ships (19)	All Ships (77)	Shore Estabs. (9)	Warships (23)	Depot Ships (5)	All Ships (29)	Shore Estabs. (7)
Man-months available	83,206	43,570	126,776	37,720	128,194	28,863	157,057	131,700
Heat exhaustion	0·14	0·20	0·16	0·01	0·24	1·23	0·42	0·04
Skin diseases*	**8·43**	**10·16**	**9·02**	**3·82**	**9·39**	**10·98**	**9·68**	**5·75**
Otitis externa	1·80	2·16	1·93	0·47	1·84	3·01	2·05	0·99
Malaria	0·02	0·01	0·02	0·01	0·09	0·04	0·08	0·76
Dysentery	0·37	0·70	0·48	0·45	2·31	4·08	2·63	1·83
Psychoneurosis	0·06	0·07	0·06	0·08	0·05	0·11	0·06	0·11
Dyspepsia	0·19	0·18	0·19	0·17	0·25	0·24	0·25	0·15
Bronchitis	0·17	0·22	0·19	0·12	0·20	0·40	0·24	0·29
Common cold	1·26	1·61	1·38	1·39	1·45	2·02	1·56	1·17
Sore throat	1·00	1·34	1·12	1·03	0·78	0·93	0·81	0·91
Fever (P.U.O.)	0·07	0·07	0·07	0·01	0·13	0·04	0·11	0·12
Pulmonary tuberculosis	0·01	0·02	0·01	0·02	0·02	0·02	0·02	0·02
Minor injuries	**3·27**	**4·15**	**3·57**	**2·11**	**3·79**	**5·99**	**4·20**	**2·09**
Totals	16·79	20·89	18·20	9·49	20·54	29·07	22·11	14·23

*Excluding prickly heat.

The amount of ill-health in ships was very much greater than in naval barracks and establishments ashore, mainly because of the predominance in ships of skin diseases (including boils, fungus infections, septic prickly heat, and tropical pemphigus) and other infections of the epidermis such as otitis externa, and also because of the relatively greater incidence of minor injuries. Uncomplicated prickly heat was almost universal in many ships, and the monthly incidence of heat exhaustion in ships of the Eastern Fleet (0.42) represented a rate of 1 man in every 20 per year.

On the credit side the incidence of infectious diseases and malaria remained at a low level. Respiratory tract infections were the most prevalent infective condition in both Fleets. Dysentery, however, accounted for increased ill-health in the Eastern Fleet. Dyspepsia was not a common complaint, and neuro-psychiatric disorders were relatively infrequent. Cruises out of the Tropics to South Africa or Australia were always associated with a great decrease in minor sickness, and the significant role of hot humid atmospheres in the causation of ill-health in the Tropics was undoubted.

Comparable wartime figures are not available for the Home Fleet. Reports from ships made during the first twelve-month period after the Japanese War ended, which gave the numbers of men on the sick-list or attending as

out-patients at midnight each Wednesday, have been analysed by Dr. J. A. Fraser Roberts. These show that the average sickness for the period under review was approximately twice as great for ships serving in the Tropics as for those in the Home Fleet, and the figure for ships in the Mediterranean lay between these two extremes. Few ships were serving in northern waters at this time. The increase in the Tropics was found again to be due to skin diseases and minor injuries, and again the ships' companies of depot ships and repair ships were the least healthy in the Fleets.

The Effect on Efficiency

The adverse influence on efficiency imposed by this widespread increase of skin disease and heat illness in the Tropics was unquestionable. It was found that air-crew in a fleet aircraft carrier lost more than three times the number of flying days in three months in the Tropics than did a larger number of air-crew in the same ship in a previous quarter when operating off the coast of Norway. In addition to ill-health the warm environment in itself reduced the efficiency of the men. Work took longer to do, and was not so well done as in cooler climates. Heavy operations, such as "bombing-up" a wing of 24 aircraft, took half as long again as in home waters.

Observations on men working in gun turrets (Ellis, 1947a) showed that the ammunition parties were working under conditions which brought them near to the limits of physical endurance. Submarine crews were prevented by heat and humidity from carrying out full-length tropical patrols until air-conditioning plant was fitted.

The view that the prevailing warmth in ships was detrimental to efficiency was given further support by work at the climatic laboratories of the Medical Research Council by Professor F. C. Bartlett and Dr. N. H. Mackworth at Cambridge and by Dr. E. A. Carmichael and Dr. B. McArdle and their colleagues in London. This work confirmed the main conclusions of Eichna *et al.* (1945) and of Robinson *et al.* (1945) in the United States of America that men could carry on with heavy physical tasks for short periods without collapsing when the prevailing level of warmth was greater than that generally encountered in the Eastern Fleet except in gun turrets in action and certain machinery compartments. The efficiency of wireless operators, however, was found to fall off between effective temperatures of 83 and 87.5° F. (28.3 and 30.8° C.) which were commonly experienced in the Eastern Fleet; and the examination of the effects of warmth on other activities of importance in warships confirmed the conclusion that accuracy, judgment, and concentration over short periods (four hours) were reduced in quality before ability to continue to perform simple but strenuous physical tasks.

Many of the principles of man's reaction to excessive warmth have been examined in the United Kingdom, although the effects of heat radiation require further elucidation. It is now desirable to discover whether men acclimatized by living in ships stationed in tropical waters will show similar reactions to the conditions of the above experiments.

This survey of conditions in ships, similar observations by Royal Air Force observers in aircraft in the Eastern Theatre, precise observations on the effects of desert heat on soldiers by Ladell, Waterlow, and Hudson (1944), research in climatic chambers, and parallel studies in the United States have provided much information on the environmental factors which limit the efficiency of military forces in hot climates. In general this supports the standards which are now used in designing ships' ventilation systems for tropical service.

It is generally agreed that to afford men periodic respite from the heat by the selective application of air-conditioning to certain offices, work-places, and recreational and living spaces offers the best chance of improving the thermal environment of men in warships in the Tropics, but much can be done with soundly designed and operated ventilation systems, and by keeping the air moving with ceiling or bracket fans. More generous application of air-conditioning is desirable for those smaller ships which must patrol in the desert-locked waters of the Red Sea and the Persian Gulf, where the severity of the climate far exceeds that normally encountered in the Indian Ocean.

Less is known about the effects of extreme cold on efficiency. There is no sound index for indicating simply the effect of varying low temperatures, humidities, and air velocities on physiological and psychological functions, and information about the optimum levels of warmth to be maintained in ships by artificial heating is incomplete. There is thus a need for further examination of the human factors related to operations under extremely cold conditions, to make available the fundamental facts without which the design of equipment for the Arctic and Antarctic will continue to depend on empirical methods.

Conclusion

Considerable research is being devoted to ways of securing optimum arrangements of working equipment, machinery, and seating, to the designing of instrument controls and displays to enable simple and efficient operation, to anthropometry, and to time-studies for reducing delay or saving man-hours in processes involving several operators or teams of workers. Other investigations are concerned with the definition of optimum lighting intensities and the most favourable siting of sources of illumination for various types of work. The influence of background noise or unexpected sounds on the performance of auditory or non-auditory tasks, and more abstract considerations such as the effects of monotony or repetitive tasks on overall efficiency, are being reviewed.

It is not possible here to consider many other factors which affect working efficiency. Little reference has been made to clothing or the psychological aspects of life in warships, the present knowledge of which was reviewed by Critchley (1945), or to less common environmental problems such as those associated with escape from sunken submarines.

From this brief survey it will be seen that the structural features of warships are closely bound up with the requirements of the men. The acute space limitations, the need for securing watertight subdivisions of ships, the heat generated by machinery, and the limitations in the Tropics of ventilating procedures designed for temperate climates make it necessary to secure a sound compromise between meeting these requirements and building efficient fighting ships. We have reached a stage when satisfactory design can proceed only if precise and accurate data are available on the human requirements and limitations and if these can be translated simply into terms appreciated by engineers and designers.

The rapid strides in aircraft construction, shipbuilding, underground engineering, and under-sea activities, and the economic need for providing optimal conditions for workmen in many spheres, have shown that many of the environmental problems which beset the fighting services in war differ little from those of the civil community at peace.

It would seem appropriate that men with a medical education should play a large part in these studies, and in particular that the medical services of the Army, Navy,

and Air Force should play a leading part in integrating the results of research work in the medical and physiological fields in the plans of those responsible for equipment design or concerned with maintaining operational efficiency.

I am indebted to the Royal Naval Personnel Research Committee for permission to publish this account of some of the committee's activities.

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PERMANENT HOMONYMOUS QUADRANTANOPIA AFTER MIGRAINE

BY

W. M. RICH, D.O.M.S.

Migraine with visual hallucinations is reported often enough in the literature to need no further amplification. That it can have a permanent effect on vision is not. A case is here described of permanent homonymous quadrantanopia following 20 years of migrainous headaches.

Case History

The patient, a married woman aged 32, has had headaches since she first began to menstruate at about the age of 12. There is some relationship to her periods, but it is not absolute. The headaches have been getting worse during the past two or three years. They always develop in the same way: first there are "flashing lights," and as these fade a "haze" appears on the right side and spreads from above downwards and to the left. With the haze, or soon after, the headache ensues, beginning in front and radiating to the back of the head, becoming most intense occipitally. The patient recently noticed that the "haze" was permanently present wherever she looked and whether she had a headache or not. When I first saw her she had had this shadow in each eye, above and to the right, for about two years. She has been married 14 years and has two children (girls, aged 13 and 7); there have been no miscarriages. She was very thin up to the birth of the younger child, but during the next two years her weight rose from 7 st. 6 lb. (47 kg.) to over 10 st. (63.5 kg.), where it has remained for the past four or five years. Her periods are normal and regular. There is no polyuria or polydipsia.

On examination she was seen to be a well-nourished, placid, intelligent, and apparently healthy young woman. Eye examination revealed: R.V. 6/5, J. 1; L.V. 6/5, J. 1; emmetropic; orthophoric; pupils active to light, both direct and consensual, and to accommodation-convergence, equal and well sustained; Wernicke's hemianopic reaction could not be obtained; tension (digitally) normal; media and fundus of each eye normal and healthy. The blood pressure was 128/68. Night and morning specimens of urine were normal. The Wassermann reaction and gonococcus-fixation test were negative. *X*-ray examination of the skull showed that the pituitary fossa was exceedingly small, with ossification of the petro-clinoid ligaments. The only other abnormalities discovered were:

Peripheral Field.—1/330 mm. white was full and normal in each eye, except for a small absolute scotoma, homonymous and quadrantic in shape and less than 30 degrees, which was more satisfactorily plotted with the Bjerrum screen. Those for red, green, and blue were similar. Only the white is illustrated (Figs. 1 and 2).

Bjerrum Screen.—5/2000 mm. white, red, blue, and green were taken, but only that for white is illustrated (Figs. 3 and 4). The points to be noted are: sparing of the macula; the clean-cut edge along the 90 degrees vertical and 180 degrees horizontal meridians, and between these the absolute scotoma from 1 to 18 degrees; the relative scotoma for a further 5 degrees where the colour faded; its quadrantic shape, homonymous in character, and almost complete congruity. The colours followed an almost identical pattern.

Discussion

Migraine is usually considered to result from vascular instability, the headache being due to spasm of the arteries supplying the occipital cortex, or of the scalp and dura mater, or to irritation of the meningeal arteries following an initial dilatation which produces the sense of well-being. In the present case, however, there is just the possibility of friction on the left optic tract due to calcification of the clinoid ligament; but this seems somewhat unlikely, for the patient was re-examined at three-monthly intervals during the ensuing six months and no change was found.

Traquair (1933, 1942) states that the characteristic feature of optic tract lesions is incongruity, that the fixation area is more often affected when the lesion is in the anterior part of the suprachiasmal path, that homonymous quadrantanopia is found in damage to the calcarine fissure or to the radiation, that sparing of the fixation area of usually less than 5 degrees is almost constant in occipital hemianopias, and that isolated hemianopia is so rarely due to optic radiation and so frequently to occipital lesions that the latter position should be assumed as the site of the lesion unless there is other and stronger evidence, such as a wound, to implicate the former. While Peter (1938) states that perimetry definitely locates ophthalmic migraine in the visual cortex and that migraine is probably due to spasm of the small vessels in the cuneus and where the scotomata—quadrantic or hemianopic, always bilateral and homonymous—have become permanent, the repeated attacks of spasm in these vessels during the migrainous attacks have resulted in permanent occlusion of the vessel, with softening of the brain tissue, the functional now becoming organic.

It may therefore be safely assumed that in my case this is what has happened rather than the problematical suggestion of friction from an ossified clinoid ligament damaging the optic tract.

Review of the Literature

That there is a connexion between idiopathic migraine, epilepsy, and subarachnoid haemorrhage has been mentioned before. It is not the purpose here to discuss this, but to draw attention to the much greater frequency of hemianopias associated with migrainous headaches either of established or, most probably, vascular origin, irrespective of the age of the patient, and those associated, as in the case described, with idiopathic migraine in which the possibility of vascular origin other than vasomotor instability is most unlikely. Ormond (1913), quoting from his own and other observers' cases, mentioned nine in all, six of which,

with one doubtful exception, were probably cases of intracranial haemorrhage. In two of the three cases of migraine uncomplicated by a probable vascular lesion there was homonymous hemianopia with sparing of the macula by less than 5 degrees.

At a meeting of the Ophthalmological Society Prof. Uhthoff (1914) said that he had seen five cases of persistent homonymous quadrantanopia, and necropsy showed complete atrophy, strictly limited to the lower half of the cuneus, of the right occipital lobe. The second was recorded by Schiff-Wertheimer (1926). This patient, a man aged 60, had a right superior homonymous quadrantanopia, and necropsy revealed a lesion of the left cuneus, limited to the inferior lip of the calcarine fissure. These two cases,

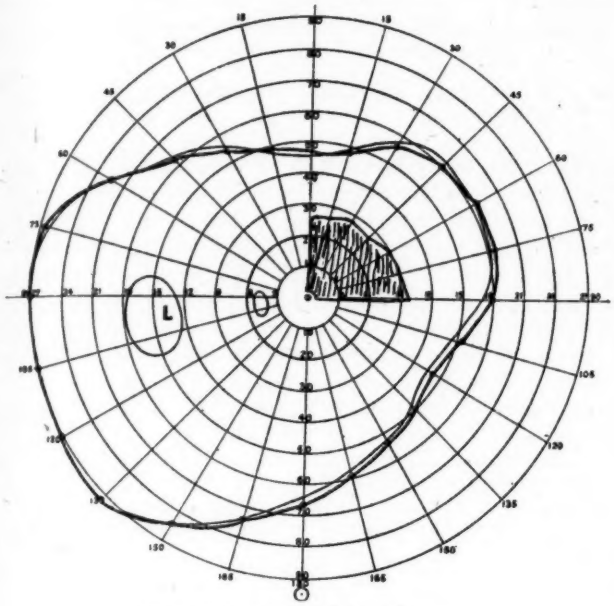

FIG. 1.—Perimeter field, left eye.

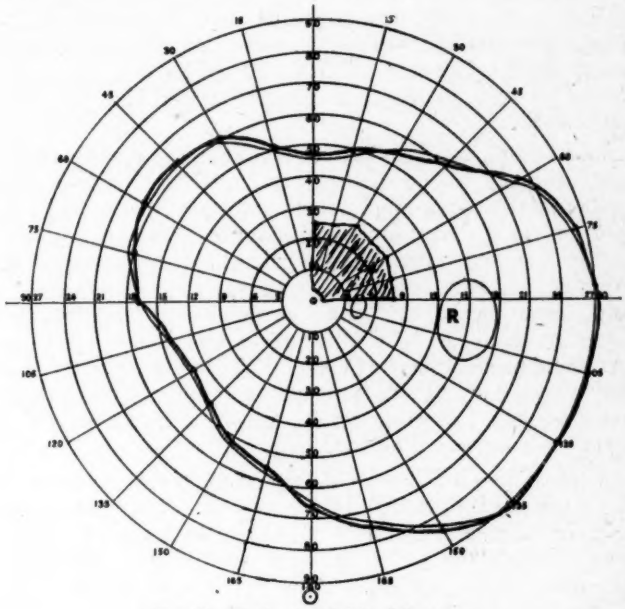

FIG 2.—Perimeter field, right eye.

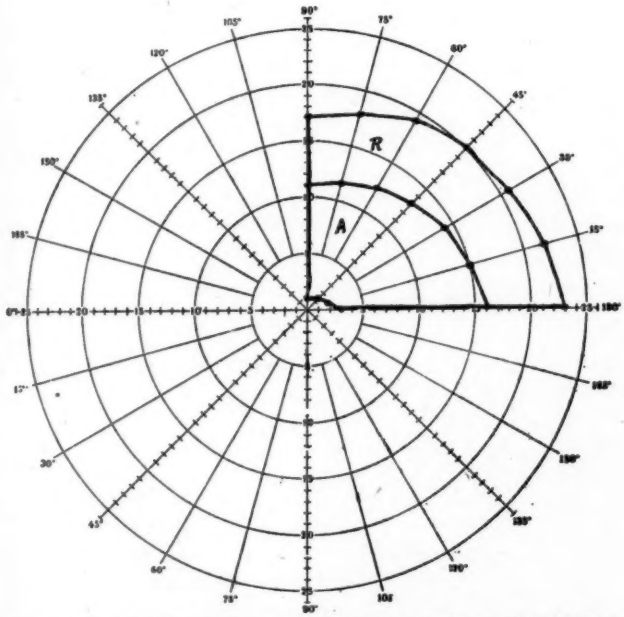

FIG. 3.—A: Absolute scotoma. R: Relative scotoma with blurring and loss of colour. (Left eye.)

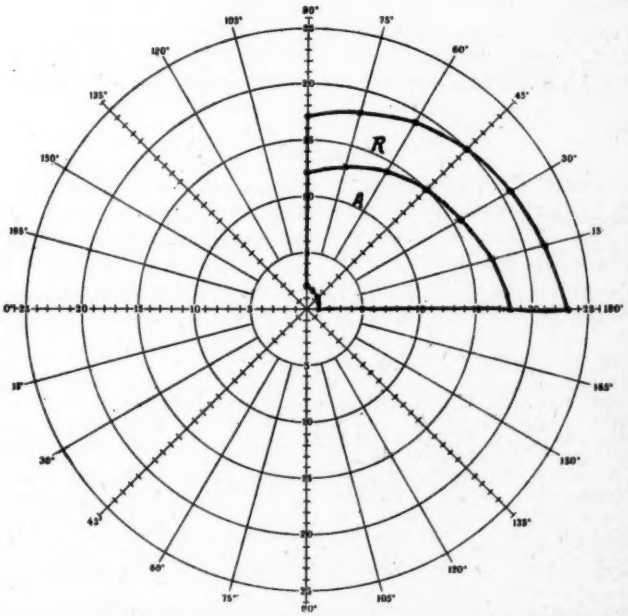

FIG. 4.—A: Absolute scotoma. R: Relative scotoma with blurring and loss of colour. (Right eye.)

partial hemianopia following recurrent migraine, and was of the opinion that they were localized to the occipital cortex; Hawthorne (1914) described four cases free from vascular or renal cause in young women, and five others in older patients with a greater or lesser degree of cardiovascular degeneration; and Cross (1914) mentioned 18 of his cases of the latter type, and stated that the common cause was embolism of some twig of the calcarine artery.

Johnson (1936) quoted two cases of quadrantanopia which came to necropsy. The first was that recorded by Hun (1887) This patient, a man aged 57, had a left inferior

particularly the latter, support the hypothesis that in my case the lesion will be found in the occipital cortex rather than in the optic tract.

The statement by Veil (1930) that transitory hemianopia associated with ophthalmic migraine is of no importance seems to require revision, as does Tidy's (1945) that in rare cases migraine may subsequently result in complete blindness; for Thomas (1907) remarked that "a number of cases are reported [of hemianopia as an aura of migraine] where symptoms appearing during the attack similar to transitory ones in previous attacks have become permanent." He

quoted eight cases, four of which were his own. One of these four proved at necropsy to have had an aneurysm of the right posterior communicating artery which had burst; two others were probably vascular in origin, since in one case there was amnesia and in the other paraesthesiae; and the last of the four—a healthy young woman of 27—was a case of right permanent hemianopia as a result of idiopathic migraine, with sparing of the macula by less than 10 degrees and otherwise a clean-cut vertical edge above and below. She was re-examined six weeks later, but there was no alteration. The ages of these four patients varied from 15 to 67 and all had had proved intracranial vascular catastrophes.

Peter (1938), quoting Charcot and others in their description of cases of persistent quadrantic and hemianopic scotomata following migraine, remarks that other cases have appeared in the literature from time to time; while Adie (1930), drawing attention to permanent hemianopia in migraine, migrainous epilepsy, and spontaneous subarachnoid haemorrhage and their probable interrelationship, describes seven cases in which there was probably a subarachnoid haemorrhage. Dixon (1947), in drawing attention to the frequency of strokes in young adults, mentions four cases of field defect in young people associated with a probable intracranial haemorrhage.

Comment.—In this brief review of the literature 63 cases are mentioned, of which 14 seem to be of true idiopathic migrainous origin, and 49 have been associated with intracranial haemorrhage—a ratio of 2:7. It seems likely, therefore, that many more cases of migraine than appear in the literature would show permanent field defects, that sooner or later a number of these would show other signs of intracranial haemorrhage, embolism, or thrombosis, and that the relationship between migraine, epilepsy, and subarachnoid haemorrhage is closer than has been recognized. Attention is also drawn to its greater frequency in women.

Summary

A case of permanent quadrantanopia subsequent to 20 years of repeated attacks of idiopathic migraine is described.

The probable site of the lesion—at first functional, later organic—is discussed.

A review of the literature revealed only 13 other cases.

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The National Corporation for the Care of Old People has appointed a committee to make recommendations on grants for old people's homes and their welfare services in Scotland. Sir Hector Hetherington, Principal and Vice-Chancellor of Glasgow University, is chairman of the committee, and the other members are: Dr. A. Greig Anderson, Dr. A. D. Briggs, Dr. R. W. Craig, Miss Grace Drysdale, Prof. Ferguson, and Mr. H. L. F. Fraser. Offices are to be opened at 2, St. Andrew's Square, Edinburgh.

PHLEBOTHROMBOSIS DECUBITI AND PREVENTION OF PULMONARY EMBOLISM

BY

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The assumption that pulmonary embolus is an unavoidable accident is no longer tenable.—J. FINE.

In this article no attempt will be made to describe and discuss the prevention of phlebothrombosis by early ambulation, exercises and massage, or the administration of anticoagulants. Moreover, much as I should like to express my views on the relationship of posture to venous thrombosis, I am anxious to avoid becoming involved in controversies concerning the merits and demerits of Fowler's position. This does not imply that I fail to appreciate that the prevention of phlebothrombosis is an ultimate goal of the combined professions of medicine and nursing. On the contrary, it is because this goal cannot be reached without a numerically enhanced nursing service, including specially trained masseurs, far better laboratory facilities, an unlimited supply and unbridled use of expensive drugs, and, above all, more and better hospital facilities, that I propose to concentrate on how to grapple with the problem as it presents itself in average hospital and private practice in Britain to-day.

We are faced with the fact that, except in a few clinics that are accorded facilities not vouchsafed to any but a mere handful of the profession, there is not one iota of evidence that pulmonary embolus is less frequent to-day than it was ten, fifteen, or twenty years ago. It is for this reason, while continuing to preach the gospel of the prevention of phlebothrombosis instead of sitting with folded hands awaiting the medical millennium, that I propose to concentrate on measures to forestall pulmonary embolism which the clinician himself can inaugurate and carry out if he has the energy and determination to do so.

Fatal pulmonary embolus is always disconcerting. Those in attendance rightly cannot smother a conviction that the visitation should not have occurred. Little wonder that generations of conscientious workers have sought to rid the practice of surgery and gynaecology of a scourge. I envisage (*a*) the early detection of phlebothrombosis, and (*b*) the removal of the clot from the femoral vein before it has moved to the heart, as the two limbs of a Colossus astride a subject of fundamental importance to every surgical practitioner.

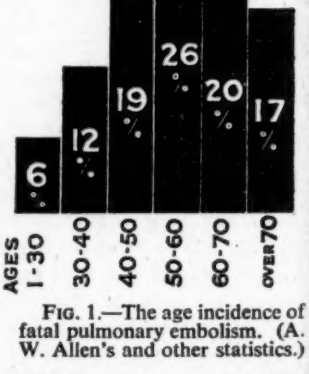

FIG. 1.—The age incidence of fatal pulmonary embolism. (A. W. Allen's and other statistics.)

Early Diagnosis

The temperature chart shows unexplained repeated slight elevations. As the condition is more prone in those past the meridian of life and the highest incidence is between ages 50 and 60 (Fig. 1), if the patient has undergone an operation about a week previously, more particularly if that operation was one of herniotomy, hysterectomy, resection of the rectum, prostatectomy, cholecystectomy, or

for perforated appendicitis, and decidedly if the patient has been nursed with a pillow placed beneath the knees, the well-trained clinician's thoughts should reflexly turn to the veins of the lower extremities. While it is true that the fewer the symptoms caused by phlebothrombosis the greater the danger of pulmonary embolism, it is equally true that the majority of cases of phlebothrombosis decubiti remain undiagnosed until pulmonary embolism has occurred, *because the lower limbs have not been examined.* When all those in attendance are alert to the dangers of clotting in the veins of the legs, when the nurse reports a slight pain in the calf and, in relevant cases (especially between the third and seventh post-operative days), the clinician undertakes routine examinations to exclude phlebothrombosis, then, and then only, is real progress in the prevention of pulmonary embolism likely to occur.

Have the bed-clothes turned up (not down) and display the whole of both lower extremities. Observe the limbs for swelling, which may be slight, fullness of the veins, and a cyanotic tinge.

In suspected early cases proceed as follows:

1. Apply finger-tip pressure over each saphenous opening, and with a stroking motion run the finger down the course of each femoral vein, seeking a segment of unilateral localized tenderness.

2. Let the patient draw up the knees and lie quietly, relaxing the muscles. Begin by palpating the feet for tenderness, especially the medial aspect and behind the internal malleolus (Payr, 1930). Next gently squeeze the calves and then palpate the whole of the thighs systematically, the object being to seek a localized area of muscular rigidity combined with deep tenderness (Frykholm, personal communication).

3. Palpate deeply in the popliteal spaces, noting if there is tenderness here, after which ask the patient to lower the legs on to the bed.

4. Homan's sign. With the knee extended, dorsiflex the foot. Pain in the calf is a positive sign of considerable significance.

5. Compare the femoral pulses. When the femoral vein contains clot the beat of the artery alongside it is usually perceptibly weaker.

If as a result of this thorough examination the diagnosis of femoral thrombosis is reasonably assured, the advisability of exposure of the sapheno-femoral junction should receive every consideration. Removal of clot and interruption of the femoral vein will forestall many pulmonary emboli.

Femoral Thrombectomy

Femoral thrombectomy is not a new procedure. Thirty years ago Sir Carrick Robertson, of Auckland, New Zealand, successfully removed a thrombosis from the femoral vein of Mrs. Bates. In Germany, before the 1939–45 war, Kulenkampff carried out the operation many times. In the U.S.A. in recent years femoral thrombectomy has frequently been undertaken; indeed, in a number of American surgical centres the resident and nursing staffs are trained in the early detection of phlebothrombosis decubiti, and the reports on large series of cases of thrombectomy are highly satisfactory.

Anaesthesia.—I have experienced but little difficulty in carrying out the operation under local analgesia. When, as is sometimes the case, there are gelatinous adhesions between the femoral artery and vein, their separation is painful. In these circumstances, and when the patient is very nervous or grossly obese, local analgesia may be supplemented with a small intravenous injection of thiopentone.

The Incision.—A transverse incision* about 4 in. (10 cm.) long 1/2 in. (1.25 cm.) above the saphenous opening has proved adequate.

* Since this was written, A. W. Allen gives good reasons for choosing a vertical incision.

Operation

The inferior lip of the incision being retracted, the saphenous vein as it passes through the saphenous opening is identified and divided between haemostats. After the fascia that constitutes the edges of the saphenous opening has been slit vertically, employing the stump of the saphenous vein as a guide, the femoral vein can be quickly exposed with but little disturbance to it. That this great vein is filled with clot may be apparent at once, but clots cannot be felt unless they are of the most solid character. Employing a Watson Cheyne dissector, the femoral vein is isolated for a distance of about 3 in. (7.5 cm.), exercising gentleness for fear of displacing the clot.

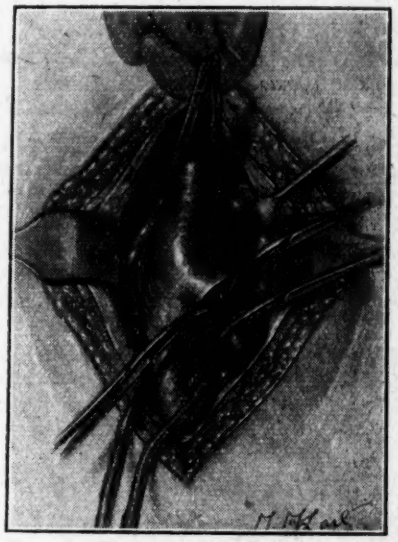

FIG. 2.—Femoral thrombectomy. Bisection of the saphenous vein.

The first aim is to clear the circumference of the upper end of the common femoral vein sufficiently to pass a sling (a narrow strip cut from a sheet of corrugated rubber) around it. Once the sling is in action (see Fig. 2) there is no fear of displacing the clot towards the heart, and the process of freeing the femoral vein and identifying the superficial and deep branches and other radicles can proceed apace. A sling is passed under the superficial femoral vein at the lower end of the wound. Ideally another sling should be passed under the deep femoral vein, but I have omitted this step in most of my cases. Neither the upper sling nor the lower sling is put into action at this stage. The haemostat on the stump of the saphenous vein, which has served well first as a guide and later as a tractor, is removed and the sealed mouth of the vessel is prised open (Fig. 2); scissors are introduced and the common femoral vein is slit for about half an inch.

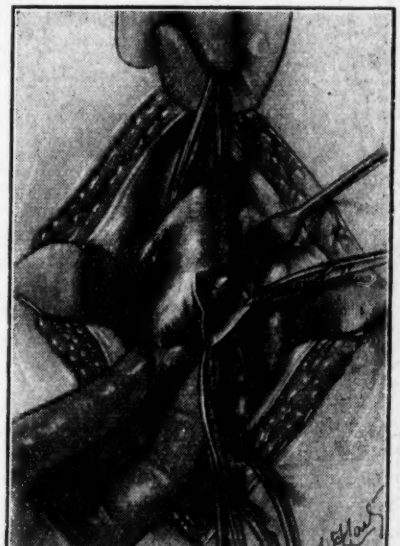

FIG. 3.—Clot being expressed from the femoral vein. Some of it is often extruded spontaneously.

There is no need to become apprehensive regarding a possible haemorrhagic cascade: if the vein contains much clot there will be no bleeding at all; if it contains loose clot the very thing we want is to let the femoral vein bleed and sweep out the clot. Haemorrhage can be brought under absolute control with the slings. Be assured that with the slings in position the surgeon is complete master of the

situation at any moment. When present, clot is expressed from the distal end of the vein (Fig. 3). By the delicate use of Desjardin's gall-stone forceps a long wormlike clot can often be extruded without breaking it, or at any rate not fragmenting it. The same procedure in extracting clot from the proximal end is undertaken. If free bleeding occurs the sling is tightened and the next step omitted. A glass tube or, better still, my pattern clot extractor (Fig. 4) connected to a sucker is passed up the common femoral vein into the iliac vein (Fig. 5). Smaller clots can be expeditiously removed by its agency. Ideally there should be bleeding from both ends of the vein. In my experience, when a considerable amount of clot has been extracted it is seldom realized from the distal end. The vein is clamped above and below the opening that has been made into it. The vein is then divided across the ends and ligated. After sprinkling sulphanilamide powder into the wound the skin is closed with rubber dam drainage. I have not regretted draining the wound, but I have had a little trouble with local sepsis in cases where this step is omitted.

FIG. 4.—Clot extractor for use with a suction apparatus. (Made by Hawkins, Ltd.)

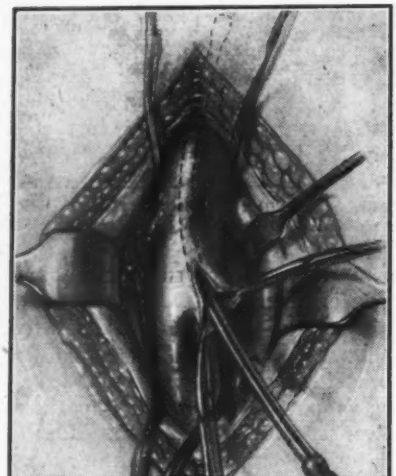

FIG. 5.—Clot extractor in use.

Immediate After-treatment.—Prophylactic penicillin treatment is not out of place. The limb is elevated on pillows, but the patient is encouraged to move it from the beginning. Even should there be a clot above the point of interruption of the vein the motive power that sweeps the clot to the heart is lacking, and consequently the danger of pulmonary embolism, at any rate from the iliac vein on the side operated upon, is greatly reduced. In recent cases, with the object of preventing further intravenous clotting, I have ordered the administration of dicoumarol for a week.

More Remote After-treatment.—On the third day the patient is sat out of bed, unless other considerations negative this. Before he gets up, flexible adhesive plaster, with the sticky side outwards (which permits its easy painless removal), is applied from foot to groin, so as to support the whole limb firmly.

Sequelae are surprisingly few. Astounding to relate, there is less swelling of the limb than is observed in cases of thrombophlebitis followed by spontaneous recovery. In the latter case the accepted practice is to keep the patient strictly at rest with the limb elevated for six weeks. Compare from the patient's point of view this tedium with vein interruption and sitting out of bed on the third day. Certainly there is some swelling of the limb, which continues for weeks or months; consequently it is usually advisable for the patient to wear a crêpe bandage for six months.

Less Straightforward Cases

Occasions will arise where the femoral vein is explored and clot within it is not discovered. In these circumstances it is usually advisable to explore the contralateral side, although this step requires the conviction that one is acting in the best interests of the patient. On other occasions when the patient has had a pulmonary embolism and, as always, another (probably fatal) one is feared, and there is no clear guide as to which femoral vein to explore, a most onerous decision has to be made—whether (*a*) to explore one femoral vein and, if that be fruitless, to explore the other, or (*b*) to tie up the inferior vena cava.

Ligation of the Inferior Vena Cava

The first case of therapeutic ligation of the inferior vena cava was carried out by Trendelenburg in 1911. The patient had pelvic thrombosis due to puerperal sepsis. After the operation there was dramatic improvement.

Reports of successful ligation of the inferior vena cava in cases of thrombophlebitis of the pelvic veins, and when the patient has had one pulmonary embolism and another is feared, are scattered through the surgical literature of the period between the two world wars. Contrary to what might be thought, this procedure is not a desperately formidable undertaking. It is of course essential that the ligature be applied below the level of the renal veins. To divide the inferior vena cava between ligatures appears to be a better practice than simple ligation; this would prevent late cutting through of the ligatures.

These points were brought out in and this was the impression to be gained from a paper by Wakefield and Mayo, who in 1934 were able to collect 19 cases with recovery of 15 In two instances the patient died as a result of the operation: one fatality occurred on the 23rd day, and was due to the ligature cutting through the vein; in the other case the ligature had been tied above the right renal vein.

During the past few years so much confidence has accrued in America in this to many of us still desperate expedient that in 1947 Veal *et al.* of Washington were able to present 30 cases of their own. In 28 of these the operation was undertaken on account of pulmonary embolism. Of the three deaths following the operation, two occurred in patients suffering from cardiac disease and one was due to pneumonia. It should be noted particularly that no further embolism occurred in any of the cases. So it comes about that there is reason to believe that ligation of the inferior vena cava is a practical proposition likely to save life when employed in appropriate cases at the right time. The difficulty is to be sure that the procedure is indicated. When facilities exist, intravenous injections of diodone into an exposed saphenous vein and subsequent radiography will display information regarding thrombosis of the great veins of the pelvis. The technique of the procedure is set out by Stowers and Grossman (1946).

This is not the place to enter into the technique of ligation of the inferior vena cava. It suffices to say that the operation is well within the competence of the average general surgeon, and the best surgical approach appears to be an extraperitoneal one, very similar to that of exposure of the lower end of the ureter.

Ligation of the inferior vena cava does not produce more than slight disability—oedema of the lower limbs—and this usually passes off in time.

Conclusions

At the present time in Britain there are but few surgeons who have carried out femoral thrombectomy; indeed, the operation has received less attention than pulmonary embolectomy. The latter is a heroic measure requiring

special facilities, special instruments, and special skill. Femoral thrombectomy requires none of these things.

The indications for femoral thrombectomy are: (1) when pulmonary embolism has occurred and mercifully the patient is yet in a fit condition to withstand operation, and (2) when phlebothrombosis decubiti has been diagnosed with some precision.

To endeavour to stimulate surgeons, house-surgeons, and practitioners to undertake a careful clinical examination for phlebothrombosis in relevant cases is my main object in writing this paper.

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TREATMENT OF THYROTOXIC HEART DISEASE BY METHYL THIOURACIL

BY

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While thiouracil has been employed in large numbers of cases of thyrotoxicosis, comparatively little attention has been paid to its use in the cardiovascular complications of that condition. It is the purpose here to survey this aspect of thiouracil therapy. Case histories are recounted, and these are reviewed in the light of the literature.

Patients suffering from cardiovascular disease to whom thiouracil may be administered may be grouped broadly into those in whom cardiovascular disease results from thyrotoxicosis and those in whom it originates independently. In the latter group thiouracil therapy has the same rationale as thyroidectomy has had in the past—that is, a lowering of the basal metabolic rate. It has been given with this aim chiefly to patients with angina pectoris and those with congestive heart failure.

Thyrotoxicosis is a common disorder, but few cases nowadays develop cardiovascular disease: timely operations have in so many instances remedied the condition in an early phase. Nevertheless, most of the published series of cases of thyrotoxicosis have contained several examples of such complications as auricular fibrillation. Thus Himsworth (1944) notes two cases of auricular fibrillation in 33 cases of hyperthyroidism. Grainger *et al.* (1945), reporting 29 cases of thyrotoxicosis, mentions two cases of patients with auricular fibrillation who reverted spontaneously to normal rhythm after treatment by thiouracil. Nussey (1944) mentions four cases of auricular fibrillation in a series of 29 cases of thyrotoxicosis. McGarack *et al.* (1945) reported the effect of thiouracil on 18 cases of auricular fibrillation in a series of 78 cases of thyrotoxicosis. Cookson (1945) mentions 10 cases of auricular fibrillation in 66 cases of thyrotoxicosis, and more recently Cookson and Staines (1947) reported eight patients out of 16 with auricular fibrillation who reverted to normal rhythm. Wilson (1946) noted six cases of auricular fibrillation in 66 cases of thyrotoxicosis.

The material in the present series comprises 10 patients with cardiovascular disease associated with thyrotoxicosis—seven women and three men, whose ages ranged from 41 to 81. The longest history of symptoms was eight years, the shortest a few weeks. The increase in basal metabolic rate ranged from +14 to +55%, and the lowest blood cholesterol before treatment was 106 mg. per 100 ml. There were six cases of nodular hyperplasia and four cases of diffuse enlargement; the type of enlargement did not affect the response to treatment. They have been observed over a period of 8 to 18 months.

In four patients with established auricular fibrillation various complications caused failure in each case. There were two patients with paroxysmal auricular fibrillation, in both of whom treatment was successful. Of the two patients with hypertension and cardiac enlargement one showed only slight improvement, the other none. Striking improvement resulted in the patient with angina of effort, who was able to resume work after being completely incapacitated. One patient with premature contractions and gross diminution of cardiac reserve was much improved, and was able to do her housework.

Case Histories

Case 1.—A man aged 41 was diagnosed as suffering from thyrotoxicosis in 1940. In April, 1946, auricular fibrillation began. When seen six weeks later he showed typical thyrotoxic signs and symptoms. The thyroid was diffusely enlarged. There was no cardiac enlargement or any sign of valvular disease. Auricular fibrillation was present; the heart rate was 120 and the blood pressure 130/70. There was no cardiac failure. The basal metabolic rate was + 45% and blood cholesterol 155 mg. per 100 ml. On methyl thiouracil therapy the B.M.R. fell to −10% and the blood cholesterol rose to 283 mg. Cardiac rhythm was restored to normal by 50 gr. (3.2 g.) of quinidine two weeks after starting thiouracil administration. After eight months methyl thiouracil had to be withdrawn because of granulopenia. The patient continued at work, against advice, from February to June, 1947, during which time he took sedatives, and then agreed to thyroidectomy. He has since been quite free from symptoms, the heart remaining in normal rhythm throughout.

Case 2.—A man aged 68 presented with sacral pain following an infected pilonidal sinus. On examination he was thyrotoxic, with slight exophthalmos and a nodular goitre. Auricular fibrillation was present. The heart rate was 124 per minute; the blood pressure 185/90 and there was marked arteriosclerosis. The heart was enlarged and the sounds weak; there was no evidence of valvular disease. He made steady improvement on methyl thiouracil for three months, when obvious chemosis and exophthalmos developed. He was admitted to hospital and treated with Lugol's iodine and 200 mg. of di-iodotyrosine daily; later, deep *x*-ray therapy to the pituitary gland was given. In two months the right eye developed an exposure keratitis and hypopyon, necessitating evisceration. After a very stormy convalescence he recovered, and eventually was discharged, still with fibrillation between 80 and 90 a minute and a blood pressure of 170/90.

Case 3.—A woman aged 46 presented with nervousness, depression, palpitations, and occasional irregularities of the heart. When seen in 1946 she was thyrotoxic and had an adenoma of the right lobe of the thyroid. There was no congestive failure; fibrillation was present at 140 a minute, with a radial pulse deficit of 16 a minute. Blood pressure was 130/80. Screening showed a typical heart of mitral stenosis. The electrocardiogram revealed auricular fibrillation with right ventricular stress. She made a good response to methyl thiouracil therapy, but on her return home various functional symptoms supervened and she decided to undergo operation.

Case 4.—A frail old lady of 81 presented with thyrotoxicosis and general slight thyroid enlargement. There was no cardiac

failure; rhythm was regular and blood pressure 205/100. *X*-ray examination revealed left ventricular enlargement and a prominent sclerotic aorta, with hilar engorgement. She was put on methyl thiouracil and after 13 days had improved somewhat; but she then developed drug fever to 103° F. (39.4° C.), which disappeared in 24 hours on stopping the methyl thiouracil. One week later fibrillation was noticed; at first it was intermittent, but in two days it had become persistent. Her condition deteriorated rapidly; she developed pneumonia, and died in coma two weeks later.

Case 5.—A woman aged 65, after a shock in December, 1945, noticed lack of energy and dyspnoea on effort, and later some swelling of the ankles. On examination she was thyrotoxic, with slight general thyroid enlargement. There were a few rales at the lung bases, the liver was enlarged by three fingerbreadths, and there was slight peripheral oedema. There was fibrillation on her first visit; but later the heart was regular at 96. It was not enlarged, and there was no valvular disease. Blood pressure was 150/80, with obvious arteriosclerosis. On methyl thiouracil she made excellent progress, which is being maintained on very small doses.

Case 6.—A woman aged 55 gave a history of prominence of the eyes and dyspnoea for 18 months, and palpitations for six months. On examination bilateral proptosis was present. The pulse was regular at 76, the blood pressure 150/95. There was a slight thickening of both lobes of the thyroid, but no thyrotoxicosis. On July 15, 1946, the blood cholesterol was 225 mg. per 100 ml. Radiographs of the pituitary fossa were normal. On Sept. 9 she was given hexoestrol, and two weeks later she presented with exophthalmos, enlargement of the thyroid, and thyrotoxicosis. Fibrillation was present. She responded rapidly to methyl thiouracil therapy, and the heart reverted spontaneously to normal rhythm.

Case 7.—A woman aged 52 gave a long history of nervous symptoms, which were exacerbated by the outbreak of war. In January, 1943, the thyroid was noticed to be enlarged. In July, 1946, she complained of lassitude, dyspnoea on effort, and palpitations. On examination she was thyrotoxic, and an adenoma of the right lobe of the thyroid was found. The heart was slightly enlarged, rate 90 a minute, and the blood pressure was 220/115. The arteries were normal for her age. She improved generally on thiouracil therapy, but her blood pressure fell only to 180/100.

Case 8.—A woman aged 60 gave a three-year history of loss of weight and excitability. On examination she was thyrotoxic and had a general nodular enlargement of the thyroid. The heart was slightly enlarged, with a soft apical systolic murmur. The blood pressure was 165/90, with general arteriosclerosis. The B.M.R. was +55% and the blood cholesterol 129 mg. per 100 ml. After seven days on methyl thiouracil (total dosage 4.6 g.) her temperature rose to 103.6° F. (39.8° C.). The next day fibrillation started, and continued for five days, remitting spontaneously. Thyroidectomy was performed later with excellent results. Her blood pressure, however, remained unchanged.

Case 9.—A man aged 45 had a coronary thrombosis in March, 1945, while in the Army, and was in hospital for three months. This was followed by angina of effort even on slight exertion. In May, 1946, paroxysmal nocturnal asthmatic attacks developed and he had to give up his work. Dyspnoea on effort was increasing, with ankle oedema in the evenings. In November, 1946, typical thyrotoxic symptoms started. On examination then he was obviously thyrotoxic. The thyroid was firm and easily palpable. The heart was not enlarged, and rhythm was regular at 120 a minute; there was no failure. Blood pressure was 145/90; arteriosclerosis was present. The B.M.R. was + 39%, and the blood cholesterol 106 mg. Thiouracil therapy resulted in great improvement. He is now back at work, and has only a very mild chest pain after moderate effort.

Case 10.—A woman aged 45 had had increasing dyspnoea on effort for nine months, and when seen in July, 1946, could walk only a short distance on the level. She was thyrotoxic, with nodular swelling of the right lobe of the thyroid. There was no failure, the heart was not enlarged, and there was no valve affection. Pulse rate 100, with frequent premature contractions. Blood pressure was 145/70; the arteries were normal for her age. She improved on thiouracil, and manages her housework and has no cardiac symptoms. She is still on 50 mg. of methyl thiouracil daily.

Comments on Results

Auricular Fibrillation.—In the present series six patients had established or paroxysmal auricular fibrillation. Three reverted to normal rhythm; two of these were suffering from paroxysmal auricular fibrillation and in one it had been established only a few weeks. The latter patient developed a granulopenia, and treatment had to be abandoned; but normal rhythm was held, and continued after thyroidectomy. In McGarack's (1945) series there were 18 cases of auricular fibrillation; 12 of these reverted to normal rhythm spontaneously on treatment with thiouracil, and three others were successful when digitalis was given. In none of these cases was there any other cardiovascular disease, the fibrillation being due entirely to the thyrotoxicosis. In Cookson's (1945) cases normal rhythm was restored in three out of 10 cases of auricular fibrillation. Of the remaining seven, one was treated only six days before death, and one also had mitral stenosis. In Wilson's (1946) series five out of six cases of auricular fibrillation reverted to normal rhythm spontaneously, and here again no other cardiac lesion was mentioned. Similarly, Grainger's two cases reverted to normal rhythm spontaneously. Of Nussey's four cases two were restored to normal rhythm—one spontaneously and one after the administration of quinidine. In the other two, of one and five years' standing, no attempt was made to restore normal rhythm.

Hypertension.—Grainger *et al.* (1945), noting the effect of thiouracil on hypertension not associated with thyrotoxicosis, found that little or no response occurred. Two of our cases had hypertension as the only cardiovascular abnormality and two more had established auricular fibrillation with hypertension. Of the first two, one responded well so far as her toxic symptoms were concerned, but showed only a slight fall in blood pressure. The other developed a drug fever, and treatment had to be abandoned. Thyroidectomy was performed; her blood pressure, however, remains at its former level. Of the other two, one developed malignant exophthalmos, and his fibrillation and hypertension persisted; the other reverted to normal rhythm, but the blood pressure rose from 150/95 to 170/95.

Angina.—One patient with angina pectoris gave an excellent response to thiouracil. The toxic symptoms completely disappeared, and instead of an attack of anginal pain occurring after walking half a mile (0.8 km.), he is now hardly troubled during the whole day. Raab (1945) states that the treatment of angina pectoris unassociated with thyrotoxicosis proved effective in seven out of 10 cases, the clinical improvement coinciding closely with the fall in the basal metabolic rate. Ben-Ascher (1947) found thiouracil beneficial in 25 out of 37 patients with angina pectoris. In a former paper Ben-Ascher (1945) reported on eight cases of angina pectoris with favourable results in all of them. The basal metabolic rate fell from −8% to −20% at the time of the maximum improvement. Di Palma and McGovern (1946), however, reporting eight cases of angina pectoris, found that treatment had to be abandoned in four instances, and two of the others became myxoedematous. One patient had symptoms of coronary occlusion during treatment.

Cause of Failure of Thiouracil Therapy.—Failure in five cases in the present series was due to a variety of reasons. In two cases drug fever prevented further administration; in another, psychological inability to face the long treatment necessary in thiouracil therapy was the cause, and

one was due to development of granulopenia while on a maintenance dose of thiouracil. One patient developed a malignant exophthalmos which necessitated evisceration of an eye.

Thiouracil Therapy *v.* Surgery

Thiouracil interferes with the production of thyroxine by the thyroid gland and, as shown by Himsworth *et al.* (1947), after the first three weeks there is no difference between the condition of patients so treated and those treated by thyroidectomy; and the risk of thyroidectomy is removed. With expert surgeons the mortality rate is 1% or less, and is probably nearer 4–5% when overall figures are taken. *A priori*, in cases with cardiovascular disease complicating thyrotoxicosis the figure is higher. In patients who refuse operation outright thiouracil provides an effective alternative method of treatment.

Thiouracil may also be used to assess the effect of thyroidectomy on the cardiovascular condition generally, and to bring the patient into a better state pre-operatively. This is so especially in cases in congestive heart failure. It is given for at least three weeks; it is then stopped seven to 10 days before operation, and iodine is substituted. This reduces the friability and vascularity of the gland resulting from the use of thiouracil, and substantially facilitates the surgical procedures. In patients who are sensitive to iodine, however, thiouracil may be used alone as a pre-operative measure.

Thiouracil may be used in the younger age groups in whom auricular fibrillation has occurred secondarily to the thyrotoxicosis alone. The heart in most cases will revert to normal rhythm spontaneously, and almost all of those which do not will do so when quinidine is combined with thiouracil therapy. The thyrotoxicosis may remit in time, and after adequate treatment over 12 to 18 months the thiouracil may be stopped with a fair chance of complete recovery.

Whenever thiouracil is used the risk of allergic or toxic complications arising is very real. The drug is stored in the bone-marrow in concentrations up to 16 times that in the blood, and it is this which causes the most lethal of all the ill-effects attendant on its use. Fowler (1946) has shown that of 1,573 cases collected from the literature toxic reactions of one kind or another occurred in 13.7% and serious complications in 4%; the mortality was 0.57%, and was decreasing. With the smaller doses needed when using methyl or propyl thiouracil complications are less likely to occur.

In cases with rheumatic, hypertensive, or arteriosclerotic heart disease neither thiouracil nor thyroidectomy will have any effect on the original heart condition. It will, however, improve prognosis by removing the toxic effect and the added load imposed on the already damaged heart by the thyrotoxic state.

Some cardiologists of repute have entirely abandoned the use of thiouracil as being too toxic and dangerous, and regard thyroidectomy as an equally safe method of treatment, with a more immediate and better cosmetic result.

Thiouracil should never be used when the gland is so enlarged or so placed as to cause tracheal obstruction; nor in cases in which there is the slightest suspicion of malignancy. In elderly people thyroidectomy is to be preferred. There is always a possibility of relapse on ceasing treatment or of complications, and such people will then be in a worse condition for thyroidectomy and their myocardium less well able to withstand either operation or thyrotoxicosis. In those whose temperament or economic condition will not permit them to face the long treatment with thiouracil under adequate supervision thyroidectomy is best performed at once.

Summary

An account is given of the use of methyl thiouracil in 10 patients with thyrotoxic cardiovascular disease.

The value of this treatment in auricular fibrillation, hypertension, and angina pectoris is discussed and the results are compared with those of other observers.

Treatment failed in five cases, the causes of failure being drug fever (2), malignant exophthalmos (1), granulopenia (1), and neurosis (1).

The considerations governing the choice between surgical treatment and thiouracil therapy in thyrotoxic cardiovascular disease have been reviewed.

I am much indebted to Dr. K. Shirley Smith for his encouragement and help and for permission to refer to his cases; also to Dr. H. A. Dunlop for permission to include two of his patients in this series.

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PENICILLIN AND GONORRHOEA

AN ANALYSIS OF 150 CASES TREATED BY THE SINGLE-INJECTION METHOD

BY

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It is now common knowledge that penicillin injected intramuscularly affords the best means of curing gonorrhoea. Like other treatments it has, however, certain disadvantages, and an analysis of 150 cases seen at the male V.D. clinic of the Cardiff Royal Infirmary may prove of interest. The cases were treated between October, 1946, and June, 1947. All except three showed typical signs and symptoms of acute gonococcal urethritis. In each case the diagnosis was confirmed by a microscopical examination of the discharge.

Details of the Cases

Their nationality was: British, 144; Greek, 3; Maltese, 3. 101 were single, 44 married, 3 married but separated, and 2 were widowers.

Age Incidence

16–20 years	..	..	9	36–40 years	..	..	8
21–25 ,,	..	..	50	41–50 ,,	..	..	7
26–30 ,,	..	..	44	51–60 ,,	..	..	Nil
31–35 ,,	..	..	31	61–70 ,,	..	..	1

The greatest number of cases occurred during the age group 21–25, and altogether 125 out of the 150 men were from 21 to 35 years old. The youngest patient seen was a boy aged 16 years and 11 months whose case is described below, and the oldest was a widower aged 63, who gave a history of having had gonorrhoea 30 years previously. This man was first seen on Nov. 11, 1946, after infection by a prostitute. He was free from discharge and other signs of gonorrhoea in 10 days after one injection. He then ceased attending. On Jan. 2, 1947, he returned, admitting to further coitus, and was found to have become reinfected. Again a single injection of penicillin cleared

him up. He then absented himself once more, only to reappear with a further infection on April 21. Thirty-five of the men were on demobilization leave. The rest were clerks, dock labourers, farm workers, seamen, and every conceivable type of worker found in a large seaport town. The sources of infection were: by friends, 60; by prostitutes, 56; marital coitus only, 4; risks denied, 2; not stated, 28. These figures show what is already widely known—that the prostitute is not the only source of infection.

Duration of Infection before Treatment

1 week and under	50	Between 1 and 2 months ..	1
Between 1 and 2 weeks ..	55	,, 2 ,, 3 ,, ..	1
,, 2 ,, 3 ,, ..	26	Over 3 months	2
,, 3 ,, 4 ,, ..	6	Uncertain	9

The great majority of the men came to the clinic within two weeks of becoming infected. In the "uncertain" group were a number of sailors who had had treatment with ineffectual remedies on board ship. No doctor was on board to give them proper advice.

All the patients showed typical signs and symptoms of acute gonococcal urethritis, with the exception of the following three:

1. A man aged 31, who had had gonorrhoea while on active service in India in 1944. He said he had been cured. No gonococci were found in a specimen of pus which looked typical of a gonococcal infection. He had been married two years and denied extramarital coitus. He made an uneventful recovery after one injection of penicillin.

2. A Chinese cook on board ship aged 34, who had been given an unknown dose of sulphapyridine by the ship's steward. No obvious discharge was present. He was given one injection of penicillin and a "V.15" as he was going to sea again.

3. A man aged 34, who had a primary sore as well as gonorrhoea. He was given 20 g. of sulphathiazole concurrently with arsenic and bismuth injections. After 10 days he was given an injection of penicillin, as his discharge had not gone. It did so in a day or two after the penicillin. He is still under treatment for syphilis.

There were four cases of double infection: two had a typical primary sore as well as an acute gonococcal urethritis, and two proved to be double infections but the onset of the syphilitic infection was delayed by the penicillin. Reports of these two cases follow.

Onset of Syphilis Delayed by Penicillin

Case 1.—A married man aged 24, with no previous history of venereal disease, was first seen on Sept. 30, 1946. He had run risks a week before, and had had a urethral discharge for three days. It was a typical example of gonococcal urethritis, and cleared up completely after one injection of penicillin. He reported at proper intervals of time, and on Nov. 4 his Wassermann reaction was negative. At about 12 noon on Nov. 21 I noticed a small plaque-like swelling on the body of the penis bordering on the coronal sulcus. It had a tiny central pinpoint opening. By Nov. 28 it was a typical indurated hard sore. Dark-ground illumination failed to reveal spirochaetes, but his Wassermann reaction was ++ on Dec. 9. He had typical enlarged inguinal glands on both sides. He was at once given treatment, and is still attending. This would appear to be a delayed chancre. The man first noticed a spot on his penis about Nov. 20, thus the first appearance of a specific lesion was approximately 51 days after the date of infection.

Case 2.—This patient, a married man aged 26, was first seen on Oct. 14, 1946. He had been infected a week previously and discharge had been present for three days. He had a typical gonococcal urethritis. The discharge dried up in a week after one injection of penicillin. On Dec. 2 his Wassermann reaction was negative; on Feb. 3, 1947, it was ++−, and on Feb. 10 it was +++. The only physical signs of syphilis were very typical enlarged inguinal glands on both sides. There was no trace of any primary sore, and the man was not aware that he had seen anything like a pimple on his penis. He is now being treated with concurrent injections of arsenic and bismuth. The first evidence of syphilis appeared approximately 112 days after the date of infection.

Reinfections.—During the period September, 1946, to June, 1947, there were 17 patients who reappeared with a fresh infection of gonorrhoea—12 admitted the fact spontaneously; the other five, when pressed and confronted with a pathological report, left little doubt in my mind concerning the source of their acute urethritis.

Type of Penicillin Used, Dosage, and Technique

Two penicillin oil–wax suspensions (ethyl oleate and arachis oil) were used, and both proved very satisfactory. They were warmed up to blood heat and well shaken before being drawn up into the syringe. The dose given was 375,000 i.u. in each case. It was injected into the upper and outer quadrant of the buttock. None of the patients complained of more than temporary pain or stiffness at the site of injection. No time was lost at work and no patient had any allergic reaction. The discharge disappeared in most cases very quickly: 41 were free of discharge in under 1 week, 66 in 1 week, 5 in 2 weeks, 3 in 3 weeks, and 5 in 4 weeks. In 30 cases no definite time was stated.

Sulphathiazole tablets were prescribed in 5 cases in which the urine showed persistent pus cells but no gonococci after the penicillin injection. Irrigation of the urethra was not resorted to. In cases with balanitis and some phimosis a solution of 1 in 10,000 potassium permanganate was used for subpreputial lavage.

A single injection was given to 134 patients, 14 required two injections, one patient three, and another four. When two injections were needed, the patients failed to attend promptly after the first one. The period varied from one to four weeks, and purulent discharge was always present. In one case the discharge had cleared up completely in a week, only to recur three weeks later. I have a suspicion that it was a case of reinfection, although this was denied. The case requiring three injections is described below (Group 3, Case 1).

Case Requiring Four Injections.—This patient had had gonorrhoea in 1940 during his Army service and had been cured. He was admitted with an acute gonococcal urethritis and penicillin was injected. When he attended the clinic three weeks after the injection the discharge was still profuse. A second injection was given. This time he stayed away for five weeks, and when he reappeared the discharge was as free as ever. A third injection was given. Again he absented himself, this time for 10 weeks. Then on examination the discharge was still plentiful, and a fourth injection was given. Since then he has not attended.

End Results

Group 1.—This group consisted of 62 men who were discharged cured. No patient was under treatment and surveillance for less than three months. The average period of treatment for the whole group was about four months per patient. Every one of them was free from all signs and symptoms of gonorrhoea and, except in one case in which a double infection was present, the Wassermann reaction was negative. Tests of cure adopted conform to those advised by the Ministry of Health.

Group 2.—This group consisted of 56 men who had attended the clinic for less than four weeks and had then ceased attending. Twenty-five came only once, so it is impossible to say whether they were properly cured. It is not unreasonable to assume that at least their discharges were dried up. All the remainder were dry and free from signs and symptoms.

Group 3.—In this group of 30 patients who ceased attending after one to seven months only the following three showed any signs of infection.

Case 1.—The patient, aged 23, was infected two weeks before. He attended the clinic on four occasions between Dec. 23, 1946, and March 3, 1947. On admission he was found to have a typical gonococcal urethritis and penicillin was given. He absented himself for a month, and when he returned he was found to be still discharging freely. A second injection of penicillin was given, and he then disappeared for a further month, only to return again with a right-sided epididymitis and orchitis. A third injection of penicillin was given, followed by a course of sulphathiazole. When he turned up a fortnight later his discharge had gone and his testicle was less swollen though still tender. Since that time he has ceased attending altogether.

Case 2.—A youth aged 16 years 11 months had a typical gonococcal urethritis associated with phimosis and balanitis. He did not attend until two weeks after his first injection, and was then showing much purulent discharge. The second injection of penicillin cleared up the gonococcal inflammation of the urethra, but he still had a mild degree of balanitis. This showed no evidence of being gonococcal. He ceased attending after 11 weeks' treatment.

Case 3.—A man aged 31, who had served in the Army in the East, attended for 10 weeks, and when he ceased attending had been free from discharge for a long time. His urine, however, still showed some pus cells. His general health was poor. He had been a prisoner of war in Japanese hands and had had pellagra, beriberi, and dysentery.

Group 4.—The following two cases are still attending at the clinic.

Case 1.—A man aged 21 had typical gonococcal urethritis. The discharge and all other signs and symptoms cleared up in 24 hours. His gonococcal flocculation reaction, however, was positive.

Case 2.—A man aged 26 had had gonorrhoea in the early part of 1946. He had a typical gonorrhoeal discharge, which cleared up in a week after an injection of penicillin. His urine still shows some pus cells.

Comments

To analyse case records at a V.D. clinic is difficult and unsatisfactory. In the first place I feel that the patients' statements are often open to doubt. In the second place—and this is the main trouble—such a large percentage of patients cease attending before their surveillance is complete. However, from the facts and figures that emerge from this analysis I can say that penicillin given intramuscularly in an oil–wax suspension is the treatment of choice for gonorrhoea to-day. Its advantages are obvious. Easy to give, it causes no appreciable pain or discomfort. The patient is asked to spend the minimum amount of time attending the doctor and loses no time at his work. His discharge is quickly dried up, and if he co-operates he is certain of a quick cure. It is to be specially noted that complications such as orchitis, epididymitis, and vesiculitis are now very rarely met with.

As I said at the start, there are a few disadvantages: (1) It is almost too efficient. The patient gets well so quickly and so easily that some are tempted to run further risks. No longer is the cure worse than the disease. (2) As is already known, penicillin can mask and delay the onset of primary syphilis. (3) Because of this the necessity for repeating the Wassermann test over a period of months is unfortunate. So many patients fail to realize the importance of having more than one blood test.

I would like to express my thanks to my colleagues, Dr. H. Sheasby and Dr. J. Rebeiro, for their help in preparing this paper, and also to acknowledge much assistance given me by Mr. R. D. Vanstone, the clerk to the clinic.

Medical Memoranda

Penicillin, Beeswax, and Allergy

The following two cases of allergy occurring in general practice are described to illustrate the severity of reaction to penicillin and the possibility that some component of the beeswax–oil suspension, other than the penicillin, was the exciting factor.

CASE 1

A man aged 58 complained of persistent boils, and as no previous treatment had allayed the condition it was decided to give a course of penicillin. Injections of 250,000 units in distilled water were given twice daily on June 16 and 17, 1947, and one on the 18th. The patient then defaulted. However, the furunculosis improved considerably.

On June 25, the ninth day after the first injection of penicillin, I was asked to see the patient. He stated that while driving home that day he had felt itching, first of the left foot where his boot-laces pressed, and then of the right foot in the same situation. He felt very drowsy and could hardly keep awake to drive the car home. Within half an hour he began to itch all over. He also complained of severe pain behind the sternum and of severe indigestion. An examination showed the body to be covered with large urticarial weals about the size of the palm of the hand. The feet, hands, and face were swollen. This condition persisted for seven days in spite of treatment with "benadryl," 50 mg. thrice daily, later increased to 100 with adrenaline, 10 min. (0.6 ml.), twice daily. After seven days the condition gradually subsided, but during this time the itching was intense and the patient had only very fitful sleep with the aid of morphine.

CASE 2

The patient, aged 33, was the wife of an ardent bee-keeper, and she helped with the manipulation of the bees from time to time. At first the patient had little reaction to stings until the summer of 1941, when she was stung on the lip. This became very badly swollen. In the summer of 1944 she was stung on the leg. The leg became very swollen, and she stated that the sites of previous stings also became swollen. In February, 1947, she had a small carbuncle on the face, which was treated with penicillin, 150,000 units, in distilled water, given eight-hourly for five days. This cleared up the carbuncle. On Oct. 25 a carbuncle began to develop on the chin, and next day injections of 250,000 units of penicillin in wax-oil suspension were started. These were given twice daily into each buttock alternately at the "site of election." The injections were continued until the morning of Oct. 29, six injections in all being given. On Nov. 2, the eighth day after the first injection of penicillin, the patient began to feel the site of the old bee-sting on the leg itching and a weal developed. Within half an hour the sites of injection of penicillin on both buttocks became itchy and red. For a week the sites of the injections were covered with a ring of urticaria and there was considerable swelling of the underlying tissues. During the same period the site of the old bee-sting on the leg was irritated and became swollen from time to time. The patient also averred that the taking of honey led to an increase in the local symptoms of allergy shortly thereafter. All symptoms were controlled to some extent by benadryl.

COMMENTARY

Case 1 is described to illustrate the severity of the allergic reaction to penicillin. The patient avers that he had never before had penicillin in any form whatsoever.

The second case is the more interesting in that it would seem more likely that the local allergic reactions were due to some component of the beeswax suspension. This is deduced from the facts that the bee-sting on the leg was reactivated. The other interesting factor is that the patient was quite definite that the ingestion of section-honey caused an increased irritation of both the site of the bee-sting and the sites of penicillin injection. It may be argued that the sting of a bee has no relation to beeswax. The firm which produced the beeswax was contacted. They stated that the beeswax used in the suspension is the natural product, but that in their opinion it is impossible for formic acid or other component of a bee-sting to be present in the wax. On the other hand, a well-known naturalist, who is also a bee-keeper, is of the opinion that it is quite possible for formic acid to be present in nectar and that natural beeswax could quite easily be polluted with nectar.

J. WATSON, M.D.

Reviews

MORE LIGHT

Light, Vision and Seeing. A Simplified Presentation of Their Relationships and their Importance in Human Efficiency and Welfare. By Matthew Luckiesh, D.Sc., D.E. Fourth printing. (Pp. 323; illustrated. 25s.) New York: D. van Nostrand Company, Inc. London: Macmillan and Co. 1947.

Matthew Luckiesh, the Director of the Lighting Research Laboratory of the General Electric Company of America, is a prolific writer, and this book, which is represented as "a simplified presentation of the relationships of light, vision, and seeing and their importance in human efficiency and welfare," conforms to the usual pattern of his writings. It is a simple and popular exposition of the importance of adequate lighting in everyday tasks and in industry. The author traces the history of commercial illumination from the candle to the fluorescent tube, discusses the workings of the visual apparatus, points out the meaning of visual acuity and its dependence on illumination and contrast, and shows how lighting is measured and how, when it is adequate, it eases ordinary work and is a potent factor in the attainment of efficiency, safety, and clear seeing.

Luckiesh has always been and still remains an enthusiast, and the book should be read with this in mind. To him the slogan "Better Light—Better Sight" (which, born in America for a nation-wide campaign, "has crossed the seven seas and invaded the five continents" and "has rapidly evolved into a world-wide movement") is a cure for all ills. That adequate artificial lighting is of the greatest importance to a civilization which has gone indoors no one will deny, but some of Luckiesh's statements—particularly those on medical questions—must be accepted with reserve. He is greatly worried, for example, by the "appalling prevalence of eye defects," but to expect engineering accuracy in an organ of the body is to misunderstand the whole economy of living organisms. Nearly all babies, he says, are born with normal vision, while one in four has measurable eye defects (especially myopia) when leaving school, due in part to eye-strain, which is preventable by good lighting. The defectives increase to 50% at middle age and to 80% at 60 years, for presbyopia (he claims) cannot rightly be accepted as inevitable. Moreover, since these defects are hereditary according to the philosophy of Lamarck, which he adopts without reservation, the penalties of the "unforgivable abuse" of our eyes with inadequate illumination are passed on to future generations. Should this abuse not be stopped (by adequate illumination), all mankind is "travelling the road towards blindness." If enthusiasm wins a case, Luckiesh should certainly make converts.

STEWART DUKE-ELDER.

PARATHYROIDS AND KIDNEYS

The Parathyroid Glands and Skeleton in Renal Disease. By J. R. Gilmour, M.R.C.P. Oxford Medical Publications. (Pp. 157; 26 figures. 18s.) London: Geoffrey Cumberlege (Oxford University Press). 1947.

This admirable and painstaking study is based on 90 cases of renal disease, with special reference to the histology and weight of the parathyroid glands and the skeleton. The author's earlier studies have enabled him to make an accurate comparison with a normal series. He divides the histological appearances of the parathyroids into six types, of which Type I is normal, and reaches the conclusion that two (II and IV) of these are due to renal disease. Of the others, III is doubtful and V and VI are not due to renal disease. Bright's disease (which he classifies according to Russell's ideas) is associated with Type IV. The author discusses the converse of his main thesis—the renal changes which may be secondary to parathyroid disease—and concludes that not only metastatic calcification of the kidney but chronic progressive nephritis may be symptomatic of von Recklinghausen's disease.

It should not be regarded as derogatory to observe that this book makes stiff reading. It is a mine of information, but surface working of the mine is impossible. The exposition is so concentrated that any adequate summary would be almost as long as the 157 pages of the original. Perhaps that is why the author's summary seems rather inadequate and at the same time Olympian.

RAYMOND GREENE.

DETOXICATION

Detoxication Mechanisms: The Metabolism of Drugs and Allied Organic Compounds. By R. Tecwyn Williams, Ph.D., D.Sc. (Pp. 288. 25s.) London: Chapman and Hall, Ltd. 1947.

The versatility and resource of the animal mechanism are well shown in the variety of ways in which it disposes of alien substances. This metabolic strategy, popularly known as detoxication, has been recognized for a century, but only recently is becoming specially prominent—in relation to modern chemotherapy. Dr. Williams, known for his contributions to the chemistry of the glucuronides, has now surveyed the wide field of detoxication processes and mechanisms in a closely written yet lucid monograph which, though the index contains some 1,500 entries, is no mere directory but a systematic exposition of a fascinating subject.

Detoxication, or, as it might be termed, *para*-metabolism, is of primary interest to the biochemist in that it presents Nature with chemical posers to solve. The pharmacologist, knowing the chemical tactics of the organism, can construct new drugs or modify old ones so as to prolong their action, enhance their potency, or repress their toxic qualities. The industrialist, faced with the risk of chemical hazards, can learn how to recognize their signs and avoid their consequences if he knows the detoxication capacities of the workers. Perhaps in his next edition Dr. Williams will criticize the work of Ekman (1944) on the effect of ascorbic acid on the metabolism and excretion of cyclic compounds, which should be capable of extension to several types of detoxication processes. Meanwhile we have ample material to occupy our attention in his excellent book, which will interest and enlighten many readers and will provoke discussion and encourage experiment.

W. R. FEARON.

PSYCHOTHERAPY IN PRISONS

Handbook of Correctional Psychology. Edited by Robert M. Lindner, Ph.D., and Robert V. Seliger, M.D. (Pp. 691. $10.00.) New York: Philosophical Library, Inc. 15 East 40th Street, N.Y.16.

The editors of this compendium aimed to provide a source book of techniques and methods for the treatment of the medico-psychological problems encountered in prison inmates, and there is no doubt that they have produced a useful volume. Much practical experience is summarized on such topics as court procedures, problems in the handling of special groups—for example, the female defective, sex offenders, malingerers, and juvenile delinquents—and the use of certain diagnostic and therapeutic methods such as psychological tests, the electro-encephalograph, group treatment, individual psychotherapy, hypno-analysis, narco-analysis, and electric convulsion treatment. Some theoretical considerations such as the concept of the psychopathic personality, the meaning of punishment, and psycho-analytic contributions to the understanding of the criminal are also discussed. The fact that there are 47 chapters of which almost all are by different authors inevitably results in a good deal of repetition of general principles. The reader may be puzzled by the inclusion of chapters on general medicine and on some of the medical specialties—for example, eye, ear, nose, and throat, venereal diseases, the use of sedative measures in mental hospitals, and the understanding and management of gastric neuroses—which have little specific reference to prison practice.

A collection of contributions by a large number of experts has become fashionable in scientific literature. We should like to see this form of collaboration supplemented by volumes written by groups of experts in a wide range of subjects working together through the main problems in order to assess what is really known and what is not. Bergler makes this point forcibly in his lively and stimulating chapter when he states that with the insignificant scientific status of present clinical knowledge

only one conclusion on basic principles in criminological problems is possible—that is, "your guess is as good as mine—until experience proves otherwise." Some signs of haste should be removed—for example, the authors of the chapters are not given in the contents list; and we hope that any later edition will include an index, which should not be omitted from a practical handbook.

J. D. SUTHERLAND.

PRACTICAL ALLERGY

Office Immunology, including Allergy. A Guide for the Practitioner. Edited by Marion B. Sulzberger and R. L. Baer. (Pp. 420; illustrated. $6.50 or 36s.) Chicago: The Year Book Publishers, Inc. London: H. K. Lewis and Co. 1947.

The qualification of this book's title is an understatement: discussion of allergy is not merely included but forms by far the greater part of the book. The authors begin with a full description of how to do tests for sensitivity, illustrating the text by photographs showing the technique of scratch- and patch-testing and of intradermal injection. The next section is about the immunology of infections, but, since the authors confine their account to what the practitioner can do in his own office, they ignore bacteriological and serological methods in diagnosis and mention only skin tests with antigens prepared from the micro-organism concerned. They even suggest their being used in diagnosing actinomycosis and filariasis, without any mention of examining the pus and blood respectively. The book would be more helpful if it included instructions for collecting specimens for the more usual laboratory investigations which give an unequivocal result.

The subjects of the remaining sections are Rh grouping, respiratory allergies, skin diseases (again largely allergic but oddly including actinomycosis and anthrax), spider, insect, and snake bites, and miscellaneous allergies. The authors fully describe methods of immunization and include lists of firms supplying the necessary materials. There is a prodigious list, running to 19 pages, of substances with which patch tests can be done, stating the vehicle and concentration to be used. Regarded as a practical textbook of allergy, this book presents to the reader a large and new if somewhat unreal world, and it may be found of much interest. When the authors discuss conditions not primarily allergic they give so incomplete an account as to be positively misleading to all but the well-informed.

L. P. GARROD.

GROWING OLD

The Years after Fifty. By Wingate M. Johnson, M.D. With a foreword by Morris Fishbein, M.D. (Pp. 153. $2.00.) New York: McGraw-Hill Book Company, Inc.

This book is not to be regarded as an addition to geriatric knowledge. Although the author adequately surveys for the layman some elementary facts about disease, yet in a book on senescence it is a little disconcerting to find references to rheumatoid arthritis, prolapsed disk, and puerperal thrombophlebitis. The concluding chapters contain unexceptionable advice on the problems of ageing, but the author makes plain that the quality of our advice to those growing old has not improved upon that of Cicero, from whose *de Senectute* he quotes freely. It is also inevitable that

> "Grow old along with me!
> The best is yet to be,"

should be quoted, if only to convince the cynical that life would be difficult, and senescence intolerable, without self-deception. It is perhaps in the same vein that the author, who is Professor of Clinical Medicine in the Bowman Gray School of Medicine, of Wake Forest College, records the "apparently well-authenticated case of a North Carolina Confederate veteran who became the father of two children at ninety-four and ninety-six years of age." However, robust American common sense cannot be altogether excluded, and we read with affection of Chauncey Depew, who lived to the age of 93, remarking that "the only exercise he took was acting as pallbearer for his friends who took exercise."

D. V. HUBBLE.

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

La Tubercolosi in Italia. By G. L'Eltore. (Pp. 284. No price.) Rome: Federazione Italiana per la Lotta Contro la Tubercolosi. 1947.

A general account with statistical tables of tuberculosis in Italy.

Modern Trends in Dermatology. Edited by R. M. B. MacKenna, M.A., M.D., F.R.C.P. (Pp. 432. 42s.) London: Butterworth. 1948.

Articles on various aspects of dermatology by different authorities.

Modern Methods of Amputation. By E. Vasconcelos. (Pp. 253. 61s. 6d.) Bognor Regis, Sussex: John Crowther. 1945.

Narcosis and Drug Addiction. By E. Hesse, M.D. (Pp. 219. 22s. 6d.) Bognor Regis, Sussex: John Crowther. 1946.

Discusses the ordinary drugs of addiction as well as tobacco, alcohol, tea, and coffee.

Introduction to Physiology. By W. H. Newton, D.Sc., M.D. (Pp. 284. 7s. 6d.) London: Edward Arnold. 1948.

Intended for the general reader as well as the medical student.

A Handbook on Hanging. By C. Duff. 3rd ed. (Pp. 79. 2s.) London: Freedom Press. 1948.

A light though informative account of the art of hanging.

Psychotherapy, its Uses and Limitations. By D. R. Allison, M.D., M.R.C.P., and R. G. Gordon, M.D., D.Sc., F.R.C.P. (Pp. 160. 8s. 6d.) London: Geoffrey Cumberlege. 1948.

A practical introduction for general practitioner and student.

Diabetes and the Diabetic in the Community. By M. E. Tangney, R.N. (Pp. 259. 14s.) Philadelphia and London: W. B. Saunders. 1947.

The management of diabetics described for the medical practitioner.

A Baby is Born. By G. M. Kerr, M.B., B.S. (Pp. 120. 3s. 6d.) London: Lantern Publishing Co. 1947.

A short book of advice for expectant mothers.

On Hospitals. By S. S. Goldwater, M.D. (Pp. 395. $9 or 45s.) New York: The Macmillan Company. 1947.

A general account of modern hospitals.

Microbial Antagonisms and Antibiotic Substances. By S. A. Waksman. 2nd ed. (Pp. 415. $4 or 22s.) London: Geoffrey Cumberlege. 1947.

The discoverer of streptomycin discusses the interrelationships of micro-organisms.

The Background of Therapeutics. By J. H. Burn, M.D., F.R.S. (Pp. 367. 22s. 6d.) London: Geoffrey Cumberlege. 1948.

A short account of the principles and practice of therapeutics.

Psychological Atlas. By D. Katz. (Pp. 142. $5.) New York: Philosophical Library. 1948.

A varied gallery of illustrations to lectures on psychology, including composite photographs of faces, children's drawings, and paintings by the insane.

Bodies and Souls. By M. van der Meersch. (Pp. 463. 15s.) London: The Pilot Press. 1948.

A novel of medical practice in France; translated from the French.

Endotracheal Anaesthesia. By N. A. Gillespie, D.M., B.Ch., M.A., M.D., D.A. 2nd ed. (Pp. 237. $4.) U.S.A.: The University of Wisconsin Press. 1948.

A general account, including practical details and references.

Paravertebral Block. By F. Mandl, M.D., F.I.C.S. (Pp. 330. 32s.) London: William Heinemann. 1947.

A monograph on the relief of pain associated with the autonomic nervous system.

Dermatologic Therapy in General Practice. By M. B. Sulzberger, M.D., and J. Wolf, M.D. 3rd ed. (Pp. 663. $7.75 or 42s. 6d.) London: H. K. Lewis. 1948.

A manual of modern methods in dermatology.

BRITISH MEDICAL JOURNAL

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THE REPRESENTATIVE MEETING

The Special Representative Meeting last week passed as a resolution the recommendation put before it by the Council of the B.M.A. This resolution urged that changes should be made in the National Health Service Acts of 1946 and 1947, and expressed the hope that by making such changes the Government would make it possible for the profession to co-operate. If the Government rejects this proposal and refuses to make changes in an Act which is unacceptable as it stands to 80% of the medical profession, then doctors will exercise the right given to them not to enter the Service. To make collective opinion effective the Representative Body (the R.B.) resolved that an Independence Fund should be established. This fund will be administered by trustees appointed for the purpose who will act independently of the B.M.A. The R.B. was in a decisive mood and inclined even to think that the Council's recommendation was not worded in strong enough terms. It would, indeed, have been easy for the Council to put before the R.B. a provocative recommendation which would have made impossible any new approach to the present difficult situation, already made more difficult and more unpleasant by the activities of trade unions and local Labour Party organizations referred to in the next leading article.

The two outstanding contributions to the day's proceedings were made by Lord Horder and Dr. H. Guy Dain, Chairman of Council. Lord Horder said that the B.M.A. now had the confidence of the profession in a fuller measure than ever before. This was not due to its mere numerical strength but to the realization that the B.M.A.'s policy "has crystallized in respect of those principles to give way on which would be to sell the profession's birthright." "We believe," Lord Horder continued, "that the Association regards the points still at issue as we regard them, not bargaining points but signs of the doctor being a free man, free to practise his science and art in his patient's best interest." By sticking together we should win, but we could lose by squabbling about which of our principles is the most important. "We must not yield," Lord Horder said, "on any of the points which, collectively and individually, spell the doctor's freedom."

Dr. Dain, in a forthright speech, said it must be apparent to the whole country that there was something seriously wrong with an Act which provoked so strong a feeling against it as the plebiscite figures revealed. He discussed the situation as it had unfolded since January of last year, and observed that it was unfortunate that a problem of great national importance should have been approached either with emotion or in a spirit of party politics. "We want," Dr. Dain said, "to have regard only to the efficiency of the proposed service and to exclude it entirely from political ideologies." The overall objection to the Act was against the powers of the Minister. "The Minister's power in this Act is absolute." If we entered this service without proper safeguards we should become servants of the Ministry of Health, whether whole-time salaried or not, and if this Act was not amended before it came into force we should have lost our independence and freedom. Dr. Dain emphasized once more that the people had been promised a free-for-all service available to everybody, and were going to be greatly disappointed. A wise Government, he considered, would have thought it proper to start such a service by stages. Among his concluding remarks Dr. Dain said:

> Our position to-day is that we are willing to explore the problems afresh, provided that the outcome is a service in which the medical profession remains an independent profession, secure from domination by the State. We doctors want a health service. We want our services to be available to all who need them. We are ready to enter into any discussions directed to making it possible for the medical profession to co-operate with the Government. If the Government can show us other ways, new ways, of preserving our independence we are willing to listen. But if this cannot be done we owe it to the public to make our stand.

These last words of the Chairman of Council must be carefully considered by the medical profession and will, we hope, receive equal consideration by the Minister of Health. Speaking at a moment when the plebiscite has given the B.M.A. 40,000 votes of confidence in its policy, the Chairman of Council has opened the door to new discussions. It is now for the Government to respond to this gesture and to underwrite Mr. Bevan's assertion that he seeks the harmonious and enthusiastic co-operation of the medical profession. Like Lord Horder, Dr. Dain avoided discussing any particular point on which a settlement might be reached, and when the Cardiff Division moved that ownership of goodwill by practitioners, the abolition of basic salary and the powers of direction, and the right of appeal to the Courts be regarded as essentials in any settlement with the Minister, the R.B., after some discussion on this, accepted Dr. Dain's suggestion that they should pass to the next business. The R.B. gave no support to the Lothians Division in its plea for compromise, or for the view of its spokesman, Dr. G. W. Ireland, that "if you offer concessions and the Government remains adamant, public opinion will swing right round in your favour." In a subsequent discussion on the question of a new approach Dr. Dain repeated his observation that "we are reasonable people, ready to consider any possibility for securing a service consonant with the independence of Medicine." The R.B. rejected a motion in favour of an approach to the Prime Minister with a view to reopening negotiations, and supported the motion by the City of Edinburgh "that inasmuch as the medical profession believe that a complete health service cannot be made available to everyone in July, 1948, because of lack of staff and other facilities, this meeting is of opinion that particular consideration should be given in future negotiations to the possibility of introducing the Service by stages, as this becomes feasible."

Perhaps one of the most significant motions accepted by the R.B. was that put forward by Plymouth, "that in the

opinion of this Meeting the Act must be amended to guarantee freedom of expression to doctors in all matters relating to the clinical and administrative aspects of the National Health Service in which they are engaged." In whatever kind of a service the medical profession enters there will be no freedom or independence if the right to express opinion on all medical and professional matters is in any way restricted. In an article in *The Times* of March 15 this was one of the points which a special correspondent considered should be included in an amending Bill. The writer observed that an amending Bill was needed to remove from the Health Act the legal ambiguity affecting partnerships, and suggested that the same Bill might incorporate the four pledges recently given by Mr. Bevan and his colleagues: "They have assured doctors," *The Times* correspondent states, "that the new service will respect their freedom of speech and writing; that it will not impose a 'closed shop' on them or other health workers; that the executive councils (responsible for the general practitioner service) will choose their own chairmen when the initial Minister-appointed chairmen retire in 1949; and that local authorities will be pressed to co-opt local doctors and other experts on to their health committees." *The Times* correspondent suggests that these are "not 'concessions' except to common sense."

One representative observed towards the end of the afternoon that little had been said about the consultants' position in relation to the Act. The representatives had, on the whole, been more concerned with matters affecting general practitioners. It has been said that the consultants voted in the plebiscite in the way they did because of the desire to support the general practitioner. This was obviously one motive. But during the last three months it seems that the consultants have become more aware than before of the effect of the present Act upon themselves and their work, and upon the profession of medicine. The Royal College of Physicians and the Royal College of Surgeons have so far expressed no views. But the Royal College of Physicians of Edinburgh has passed a number of resolutions which it has submitted to the Prime Minister and made public on March 26. In the view of this College the result of the plebiscite can be explained only by the fear that the freedom of the profession is gravely endangered, and that this fear centres round the power of the Minister to alter by Order or Regulation the fundamental terms of service of the medical profession. The College goes on to urge that in the national interest negotiations should be resumed and that the matters in dispute should be re-examined and adjusted so that the medical profession may co-operate with confidence in the development of the comprehensive service desired by all. This is the first statement to be made by a corporation representing consultants, by the teachers of Medicine. It underlines Dr. Dain's observation about the powers of the Minister, and re-emphasizes the readiness of the profession to consider reasonable proposals.

This is not the time for face-saving devices or for the exhibition of pride that brooks no opposition. The Government, we suggest, should call a halt to the manœuvres, described in the next article, designed to browbeat the medical profession, and in the interests of the public as well as of the medical profession should respond to the moves made by the Chairman of Council and the Royal College of Physicians of Edinburgh.

PROPAGANDA

The Government, continuing to ignore the overwhelming opposition to the National Health Service Act on the part of those who will work under it, are proceeding to waste the country's money in an attempt to secure co-operation by compulsion. By the use of films, posters, and pamphlets they are preparing a huge publicity campaign to induce the public to bring pressure upon the medical profession. The trade unions, the Government's masters, are aiding and abetting this campaign. Some, at least, are using the strength of the organized workers as a means of influencing the decision of men and women who prefer to organize themselves on a voluntary basis.

During the Representative Meeting last Wednesday Dr. J. A. Brown, of Birmingham, moved as a matter of urgency the following resolution:

> That this Meeting condemns as grossly improper the bringing to bear of pressure for political purposes upon individual doctors to induce them to inform outside bodies of their intentions in relation to the new service.

He then read three letters sent to individual doctors by two trade unions and a branch of the Labour Party. The Secretary of the Letchworth Trades Council wrote to a practitioner in that area saying that "the representatives of the twenty-two trade unions who attended would be grateful if you would very kindly let us know your intentions." The Letchworth Trades Council was acting on its decision to try to discover the number of medical practitioners who intended entering the Service on July 5. The day before this doctors in Rogerstone, Monmouthshire, received a more abruptly worded letter from the local branch of the National Union of Railwaymen. The secretary of this branch said he had been instructed "to inquire as to your views regarding the National Health Service Act to be operated from July 5," and went on to say that the members of his branch "wish to know if you are prepared to operate it on and from July 5." We may note that the Letchworth and Rogerstone letters were sent out within a day of each other, and it is perhaps not being too deeply suspicious if we see in this the guidance of a central hand. Within three days of the issue of the letters referred to, a doctor in Cambridgeshire received one from the Histon and Impington Labour Party signed by the chairman and secretary of this organization, and also by the chairman and secretary of the Transport and General Workers' Union. He was asked whether he proposed to participate in the new service, and the letter ended thus: "Should your decision be a negative one we think it only fair that we should know this in order that we should be in a position to take such steps as may be open to us for the protection of our members." Dr. J. A. Brown pointed

out that no official invitation had been issued to any doctor to join the Service and that at the present moment the regulations of the Service had not been published; nor had the legal committee been set up to report upon the ambiguities of Section 35 of the Act. The branches of the three trade unions and Labour Party are doing Mr. Aneurin Bevan's work for him on the plea that they are anxious that their members will receive medical advice and assistance. They know full well that medical men will not use the trade union's weapon of the strike; and so far as we know no medical organization, not even the Socialist Medical Association, has circularized coal-miners and dockers with letters expressing anxiety about the effect on patients of a shortage of coal or foodstuffs in the event of a workers' strike. Whatever alarm we may feel about the effect upon health of a hold-up of essential goods and services, we like to believe that other groups of workers in the State are the best judges of their own conditions of work. There is only one answer which any medical man can give to these scarcely veiled threats, and that is that he will continue as always to give medical advice and care to those who seek it, but that he will not inform trade unions or local political parties of his intention to serve or not to serve under the National Health Service Act. Any doctor receiving such letters should forward them to the Secretary of the B.M.A., who will advise him what to do. These organizations are not instruments set up under the Act, and have no right to attempt to usurp the functions of the Local Executive Councils.

The dates of the letters referred to were March 10, 12, and 13. On March 15 the Ministry of Health issued a circular to local authorities on "Publicity Regarding the Services Available to the Public." "The most important aim of central publicity," the circular states, "will be to stimulate general interest in the new service." It is urged that local health authorities should take the initiative in publicizing details of the Service under the Act and in making arrangements to deal with personal inquiries. It is suggested that in some areas joint inquiry bureaux should be set up and that another method of dissemination of information should be through local voluntary societies.

There are already in the post offices of the country copies of a leaflet prepared by the Central Office of Information for the Ministry of Health, and it is believed that this and other publicity material will be released by the Ministry of Health about the middle of April. The burden of this leaflet is conveyed in the slogan, "Choose your doctor now." "If one doctor cannot accept you," the leaflet states, "ask another, or ask to be put in touch with one by the new 'Executive Council' which has been set up in your area." Of interest to insurance practitioners is the following statement: "If you are already on a doctor's list under the old National Health Insurance Scheme, and if you do not want to change your doctor, *do nothing*. Your name will stay on his list under the new Scheme." The leaflet urges the public to "act at once," to fill in application forms for each member of the family and to hand them to the doctor. The medical man has the right to time to make up his mind whether to join the new service, especially as the legal ambiguity about partnership agreements is still unresolved. No one has the right to press him to a decision before July 5 and until he is in full possession of the facts.

This is the Minister's reply to the plebiscite. Does he really consider that the way to secure the co-operation of the medical profession is to couple the financial threat of loss of compensation with a propaganda attempt to persuade the community to coerce 40,000 doctors to enter the Service against their better judgment? The situation is getting beyond the bounds of common sense and human decency. We do not believe that the public wish to be treated by doctors bullied and threatened into a service they do not like, and we do not believe that medical men and women will allow themselves to be so coerced.

HEALTH IN WARSHIPS

The need for fresh air below decks in men-o'-war was recognized at least two hundred years ago, and at that time various attempts were made to improve the living conditions of the sailors who manned them. In 1734 Dr. Desaguliers exhibited to the Royal Society a model of a ventilating machine which could extract air from a room or impel fresh air into it, and a little later he used this appliance, which he called a centrifugal wheel, to ventilate the House of Commons. Not long afterwards troops were embarked at Spithead to proceed on an expedition against Spain, and the ill-health of these troops forced upon the Government the need to adopt some means of airing ships. Dr. Desaguliers was invited by the Lords of the Admiralty to exhibit his model; some of their Lordships saw the ventilator in the House of Commons at work, and the inventor was ordered to make a similar appliance to be tried in a warship at Woolwich. The trials were successful, but none of their Lordships witnessed them, and the Surveyor to the Navy, a prejudiced man conservative in his ideas, made an adverse report. Other schemes met with a rather better reception. After a long tussle a Mr. Sutton managed to get permission to ventilate a man-o'-war by drawing the air supply for the galley fire through the various compartments, and Dr. Stephen Hales secured a trial for his bellows-like ventilator. Yet the centrifugal fans on which the Royal Navy now relies for the ventilation of its ships are the direct descendants of the rejected Desaguliers machine.

One hundred years after these events, in 1844, D. B. Reid[1] wrote that the ventilation of ships had not at that time been placed on the systematic footing which was necessary to ensure comfort and success, but that of late it had been much improved in the Navy, with good effect on the health of the sailors. Reid referred to the great congestion which was common in ships of war and to the value of space, and he advocated the use of plenum ventilation in ships sailing to "localities dangerous from the state of the atmosphere."

[1] *Illustrations of the Theory and Practice of Ventilation*, 1844. London.
[2] "The Habitability of Naval Ships under Wartime Conditions." *Trans. Inst. Nav. Archit.* 1945, **87**, 50.
[3] Thorndike, E. L., McCall, W. A., and Chapman, J. C., *Ventilation in Relation to Mental Work*, 1916. New York.

Since those days the picture has changed. The Admiralty has endeavoured to ensure that ships are effectively ventilated and that a reasonable standard of accommodation is maintained. Neither of these results is easy to achieve. Space, as Reid noted, is very precious, and lavish allowances are impracticable. Yet if the initial space allowance is only just satisfactory any encroachment on it, or any increase in the ship's complement, will reduce the space per man to below the acceptable minimum. During the recent war such reductions in space occurred. Additional fighting equipment was introduced at the expense of living accommodation, and more men were needed to operate that equipment. In modern times efficient fans driven by electric power can supply large volumes of fresh air, but the ventilation problem is greatly complicated, especially in tropical waters, by the presence within the ship of much heat-producing machinery and equipment. Sims[2] has described some of the difficult problems which arose during the war in naval vessels.

In the years between the wars many investigations were made by the Industrial Health Research Board in this country, and by others overseas, of the effects of heat and of moderate cold on the efficiency and general well-being of the industrial worker. When the temperature was uncomfortably high or low sickness increased, and so did the accident rate. At high temperatures working efficiency declined, and in cold surroundings work which demanded a considerable degree of manual dexterity was done less efficiently. It is common experience that high temperatures are not conducive to efficient mental effort, but whether the reduction in efficiency is due to a diminished ability to work or merely to an increased disinclination for it has remained an open question. Psychologists in the U.S.A. studied the problem 30 years ago,[3] but with inconclusive results. Probably their experimental conditions did not include sufficiently high temperatures.

Before the outbreak of war in 1939 much evidence showed the deleterious effects of high temperatures, and when during the war it became evident that there would be large naval concentrations in the Tropics the Medical Research Council's Royal Naval Personnel Research Committee was asked to study the environmental conditions in warships in the Tropics and to report on their probable effects on fighting efficiency. Attention was later invited to more general problems. Several investigations were undertaken in response to these requests. A comprehensive survey of the thermal environment and general living conditions in surface ships of the Eastern Fleet was made, and similar observations were recorded in submarines during Arctic and tropical cruises. Sickness reports were obtained from the Eastern Fleet and later from the British Pacific Fleet, and the data thus obtained were submitted to statistical analysis. Laboratory experiments on the effects of heat on efficiency in both physical and mental tasks were undertaken, and a study was made of the efficiency with which work was done in ships. These investigations, and the results obtained, are described in this issue by Surgeon Commander F. P. Ellis, the Naval Secretary of the Royal Naval Personnel Research Committee, who himself carried out some of the work.

The Admiralty provisionally accepts an effective temperature of 80° F. (26.7° C.) as the upper desirable limit of warmth in living and working spaces in ships, and 86° F. (30° C.) as the upper acceptable limit. Ellis points out that in the ships of the Eastern Fleet the average effective temperature observed in each of the types of compartments listed was above the upper desirable limit, and in many of the main working spaces the upper acceptable limit was exceeded. In some of these spaces there was much radiant heat, and in these the effective temperatures corrected for radiation were substantially above 86° F. Living conditions were congested. Of the 8,000 men living in a number of ships of the Eastern Fleet the majority had less than 19 sq. ft. (1.76 m.^{2}) of floor space on the mess decks, and in the Tropics many of the men found their hammocks too hot and slept in the open air on the upper deck.

Observations in submarines showed the importance of adequate hull insulation, both in the Arctic and in the Tropics. With good insulation satisfactory temperatures can be maintained when the submarine is submerged, but on the surface the effects of climate are felt to a greater extent. Discussing accommodation in submarines Ellis remarks that the best use is made of the space available, with the result that a surprising degree of comfort is obtained. An investigation of the bacterial content of the air in a submarine showed that even when the vessel was submerged the concentration of bacteria-carrying particles rarely exceeded 50 per cu. ft.—a result attributed to the adherence of the particles to oily bulkheads and machinery.

The sickness returns covered an exposure of about 450,000 man-months. Sickness was much more prevalent in ships than in shore establishments, mainly because of the greater incidence of skin diseases and minor accidents. Prickly heat was almost universal in many ships. The great diminution in cases of minor sickness during cruises out of the Tropics to South Africa and Australia left no doubt about the importance of hot, humid atmospheres in causing ill-health. During the first twelve months after the defeat of Japan the average amount of sickness was about twice as much in ships stationed in the Tropics as in those of the Home Fleet, while for ships in the Mediterranean the figure was between the two.

Physiological studies confirmed the American finding that men could perform heavy physical tasks for short periods without collapsing when the degree of warmth was greater than that generally encountered in the Eastern Fleet. In another study the efficiency of wireless operators was found to fall off between effective temperatures of 83° and 87.5° F. (28.3° and 30.8° C.)—temperatures which were commonly met with in the Eastern Fleet. This result is noteworthy, for it gives experimental proof that efficiency in mental tasks is adversely affected by excessive temperatures.

In a concluding note Ellis remarks that we have reached a stage where satisfactory design can proceed only if precise and accurate data on human requirements and limitations are available, and he mentions the ways in which the required particulars are now being obtained. Nowadays there is much talk about humanizing industry, and from Ellis's account it is clear that the Admiralty is not only very much alive to the importance of the human factor in maintaining the traditional efficiency of the Royal Navy but that it is actively promoting research into human problems.

THE INDEPENDENCE FUND

The Special Representative Meeting last week approved the recommendation of the Council that an Independence Fund should be established, and the first Meeting of the Trustees of the Fund was held on Thursday, March 18. The Fund is an independent entity and is not part of the organization of the B.M.A. The Trustees have issued an appeal for money and have decided not to invite a renewal of the guarantees made to the previous Guarantee Fund. The two main objects of the Independence Fund are to provide financial aid to practitioners who may suffer hardship in the event of a continuation beyond July 5 of the present conflict between the medical profession and the Government; and to provide through Local Independence Committees throughout the country an organization for maintaining the unity of the profession in its expressed determination not to accept service under the National Health Service Acts of 1946 and 1947 until such amendments have been made as will preserve the freedom of the profession. The National Insurance Defence Trust has deposited with the Fund an initial contribution of £400,000. The Trustees are appealing to individual doctors to give what they can to make this Fund effective for the purpose. They suggest that there are few practitioners in established practice who cannot afford to give £100 as a first contribution. In a statement just issued the Trustees state: "The danger to the independence of our profession is a measure of the need for generous giving. . . . We appeal to you to give all you can afford in order to conserve the freedom which neither we nor the public can afford to lose." The Trustees are twenty-three in number, and have appointed Dr. H. Guy Dain as Chairman, Lord Horder as Deputy Chairman, and Dr. G. F. Buchan as Treasurer. The other Trustees are: Mr. A. Lawrence Abel, Dr. J. C. Arthur, Dr. J. A. Brown, Dr. R. W. Cockshut, Dr. W. E. Dornan, Dr. A. Staveley Gough, Dr. I. D. Grant, Dr. F. Gray, Dr. E. A. Gregg, Dr. Charles Hill, Dr. W. M. Knox, Dr. J. B. Miller, Dr. J. C. Pearce, Dr. J. A. Pridham, Dr. W. D. Steel, Prof. G. I. Strachan, Dr. S. Wand, Sir Reginald Watson-Jones, Dr. D. J. B. Wilson, and Dr. W. Woolley.

POLIOMYELITIS

In July last year we drew attention to the unusual prevalence of poliomyelitis.[1] A few weeks later it was clear that something like an "American experience" of the disease was to be expected, and we published in successive issues papers by Dr. W. H. Kelleher[2] and by Prof. H. J. Seddon[3] and discussed the general problem of its management.[4] There followed at a later stage some discussion of the terminology of poliomyelitis and polio-encephalitis.[5] The Kenny method[6] was reassessed and interest revived in the still unsolved problems of distribution and spread. Towards the end of the epidemic McAlpine and his coworkers[7] revived some of the clinical lessons that had been learnt, and Ritchie Russell[8] made an important contribution relating physical activity in the pre-paralytic stage to the severity of paralysis.

These clinical studies preceded the epidemiological surveys which were set in train in October.[9] One of these surveys has now been completed, and its results are reviewed by Bradley and Gale[10] in a paper which was published this week. From the point of view of the Registrar-General there were 53 weeks in 1947 and 9,262 "original" notifications of poliomyelitis and polio-encephalitis in England and Wales. Corrected notifications will probably total 7,600 or less, giving an attack rate of 3.8 per 100,000 population for the largest epidemic known in this country. Bradley and Gale analyse the replies to a questionary addressed by the Ministry of Health to hospitals throughout England and Wales. The 270 replies received cover the period from Jan. 1 to Oct. 11, 1947, and relate to 6,762 patients admitted with a tentative diagnosis of poliomyelitis or polio-encephalitis. The diagnosis was confirmed for 4,717 patients, of whom 2,687, or 57%, were males. The inquiry includes therefore about three-quarters of all the cases occurring in England and Wales.

There was no difference in the age distribution for males and females, and for both sexes combined 30% of the patients were under 5 years of age, 35.1% were aged 5–15 years, and 34.9% were aged 15 and over. The case mortality increased with age from a minimum of 3.2% at ages 1–4 to 34.7% in those aged 45 and over. The case mortality for males was slightly higher than that for females; for all ages the rates were 8.2 and 6.9%, respectively.

Of the 4,717 confirmed cases 2,976, or 63%, had paralysis chiefly affecting the limbs and trunk, and in 485, or 10.3%, the paralysis affected chiefly the cranial nerves. There were 333 deaths among these 3,461 paralysed patients, and of the 3,128 who recovered 1,285 (41.1%) were classed as "mild," 1,205 (38.5%) as of "moderate" severity, and 638 (20.4%) as "severe." Altogether 188 males and 122 females had to be treated in respirators; 217 were so treated temporarily and 93 are likely to need such treatment permanently. Related to the whole epidemic these figures suggest that lengthy hospital treatment will have to be provided for about 3,000 patients, one-third of them under 5 years of age, one-third at ages 5–15, and one-third of 15 or over. The preponderance of males over females in this group will be about 5 to 4, and it is probable that about 1,000 of these patients will be severely crippled.

There was no paralysis in 1,256 of the 4,717 confirmed cases. Changes in the cerebrospinal fluid made diagnosis possible in 769 of these patients; 328 were diagnosed on clinical grounds; and in 159 of the patients the symptoms and signs were indefinite, but the diagnosis was made because of close contact with a proved case. The diagnosis was confirmed in 760 women of child-bearing age, and of these patients 71 (9.3%) were pregnant. The proportion of pregnant women among the general population of women of child-bearing age during 1947 was 9.4%. In this epidemic, therefore, there was not an unduly high incidence of the disease in pregnant women. The trend of this epidemic generally was in accord with those already reported for other countries of Western civilization.

MEDICAL MEN ELECTED F.R.S.

The following members of the medical profession were elected Fellows of the Royal Society on March 18: Robert Alexander McCance, Ph.D., M.D., F.R.C.P., Professor of Experimental Medicine in the University of Cambridge, for his contributions to metabolic studies of human beings; Sir Leonard Gregory Parsons, M.D., F.R.C.P., F.R.C.O.G., Emeritus Professor of Diseases of Children in the University of Birmingham, for his studies on child health and the wasting disorders of children; and William Albert Hugh Rushton, Ph.D., M.R.C.S., L.R.C.P., Lecturer in Physiology in the University of Cambridge, for his researches on the effect of electrical stimuli on muscles and nerves.

On Monday, March 22, Lord Moran was once again elected President of the Royal College of Physicians.

1 *British Medical Journal*, 1947, 2, 135. 2 Ibid., 1947, 2, 291. 3 Ibid., 1947, 2, 319.
4 Ibid., 1947, 2, 338. 5 Murray, L. H., ibid., 1947, 2, 1028. 6 Ibid., 1947, 2, 182.
7 Ibid., 1947, 2, 1019. 8 Ibid., 1947, 2, 1023. 9 Ibid., 1947, 2, 698.
10 *Mon. Bull. Min. Hlth*, Vol. 7, March, 1948.

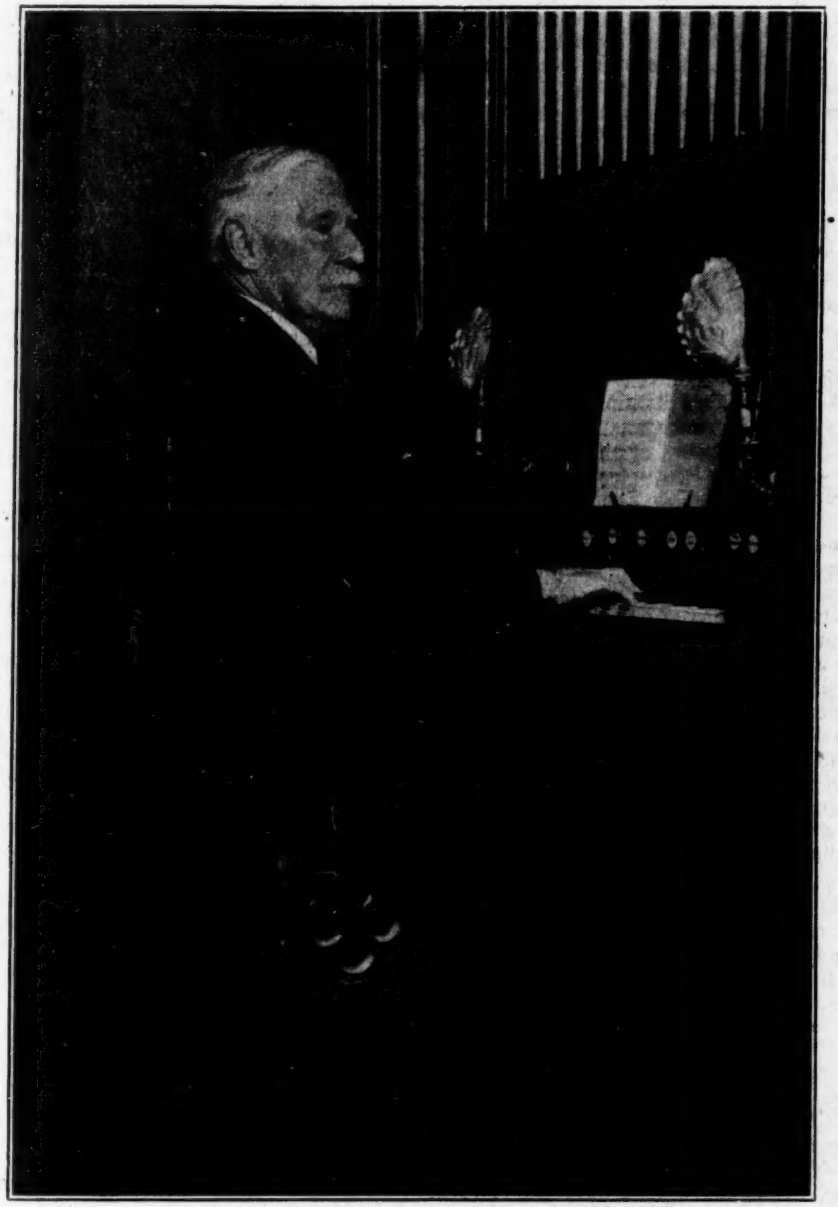
SIR FRANCIS CHAMPNEYS

CENTENARY OF BIRTH

The centenary of the birth of Sir Francis Henry Champneys, Bt., M.A., D.M., F.R.C.P., was celebrated on March 25 at St. Bartholomew's the Great, London. We print below an abridgment of a memoir prepared by his son, Sir Weldon Dalrymple-Champneys, Bt.

On March 25, 1848, there was born, in London, Francis Henry Champneys, who devoted his life to the sacred cause of motherhood and after many years of bitter fighting in the face of great opposition gave the country a fully trained and regulated midwifery profession, thus saving the lives of millions of British mothers and their children.

Francis was the fourth son of the Very Rev. William Weldon Champneys, D.D., afterwards Vicar of St. Pancras, Canon of St. Paul's Cathedral, and Dean of Lichfield (1868–75). Dean Champneys' grandfather had also been Vicar of St. Pancras and Sub-Dean of St. Paul's Cathedral. Dean Champneys was a profoundly religious man and a leading figure in the Evangelical revival. He was also a pioneer in several social movements for the care and education of the poor, starting one of the first "ragged schools" in England while in his second curacy at St. Ebbe's, Oxford, and continuing this work when he went to London. He also secured the passing of an Act in 1842 which gave the "coal-whippers" for the first time the right to establish offices of their own instead of having to tout their coal round the public houses.



Sir Francis Henry Champneys, Bt.

Francis was thus brought up in a strongly religious atmosphere, but it was by no means a stifling one, for the deepest affection and understanding existed between the Dean, his wife, and their five sons and two daughters. Francis' love of music stands out as one of the first and most marked of his characteristics. In 1860 he won a scholarship at Winchester College, and there he continued his organ lessons under Samuel Sebastian Wesley, who was organist to both the college and the cathedral.

In 1866 he won an exhibition at Brasenose College, Oxford, where his father had been a scholar and fellow (1831–7). He read natural science at Oxford, studying under Prof. Rolleston, and took a first-class in that school in the Michaelmas term of 1870. During one of his long vacations he stayed up at Oxford to dissect a chimpanzee, this work being the subject of his first medical publication, entitled, "On the Muscles and Nerves of the Chimpanzee and Anubis," which appeared in the *Journal of Anatomy and Physiology* for 1872. In 1871 he entered the medical school of St. Bartholomew's Hospital, and the following year he was elected a Radcliffe Travelling Fellow. During the half of his three years' tenure of this Fellowship, which had to be spent abroad, he worked at Vienna, Leipzig, and Dresden; at Dresden he held an appointment at the Royal Lying-in Hospital. On his return to England in 1875 he took the qualifications of M.R.C.S. and B.M.(Oxon), and was immediately appointed medical registrar at St. Bartholomew's, and in 1876 he was admitted a Member of the Royal College of Physicians of London. In the same year he married Virginia Julian, only daughter of Sir John Warrender Dalrymple, 7th Baronet of Luchie, North Berwick, a descendant of the first Lord Stair and a first cousin of the Earl of Haddington.

The year after his marriage he was appointed casualty physician at St. Bartholomew's in addition to his other work, his brother casualty physician being his friend Robert Bridges, later Poet Laureate, with whom he maintained contact all his life, both of them dying in 1930. Robert Bridges once reckoned that he saw about 30,000 patients in the casualty department during the year, and was thus able to devote on the average one and a quarter minutes to each patient! In spite of this killing pace Champneys was able to keep very interesting notes of these casualty patients, some of which were contributed to the *St. Bartholomew's Hospital Journal* in 1943* by his son, Sir Weldon Dalrymple-Champneys.

Champneys had already been attracted towards obstetrics by the teaching of Matthews Duncan, then physician accoucheur to the hospital (1877–90), a rugged Scot of outstanding personality and very decided views. All his life Champneys spoke of his teacher with the warmest admiration and affection, and the teacher must have had great belief in his pupil, for he did his best to advance his career and showed him many kindnesses. In those days and indeed much later the budding

*St. Bart's Hosp. J., 1943, 47, 223.

sultant was faced with a grim struggle whatever his ability, so Duncan's encouragement must have meant a great deal to him in his early years. It was characteristic of Champneys' innate modesty that even after his appointment in 1880 as assistant obstetric physician to St. George's Hospital he regularly attended Matthews Duncan's 9 a.m. lectures at St. Bartholomew's. At St. George's he was assistant to Robert Barnes, and when Barnes resigned in 1885 at the age of 68 Champneys succeeded him, but had to carry the whole weight of the department, as no assistant obstetric physician was appointed to the vacant post. In the same year as Champneys had been appointed to the assistant post at St. George's he had also been appointed, with Sir John Williams, who became one of his greatest friends, as obstetric physician to the General Lying-in Hospital, York Road, and his connexion with this hospital, of which he became president in succession to Lord Lister, lasted all his life. It was here, where devastating outbreaks of puerperal fever had recently been sweeping the wards, that Champneys and Williams made history by applying Lister's antiseptic principles for the first time in any English maternity wards and with the dramatic success which seems so natural to us now but was then so sensational. He was elected a Fellow of the Royal College of Physicians in 1882, a Councillor from 1902 to 1904, and served as an Examiner for the Conjoint Board from 1887 to 1891 and again from 1903 to 1907. He was offered, but declined, the honour of nomination as Harveian Orator.

From his student days he had been appalled by the way in which unskilled midwives and "handywomen" spread infection, illness, and death among the mothers and babies of the country, and he was determined to fight this evil with all the skill and energy at his disposal. This fight, which was not crowned with success until 1902, was the greatest work of his life. In 1876 he had become a Fellow of the Obstetrical Society of London, which in 1872 had set up a Board for the Examination of Midwives to conduct a voluntary examination of women proposing to practise as midwives and to grant where appropriate a certificate that the woman in question was "a skilled midwife, competent to attend natural labour." Up to this time there had been no control of women practising as midwives, the majority of whom were ignorant handywomen with dangerous and unhygienic methods. In 1890 Champneys was elected chairman of this Board. Though the setting up of the Board was a step in the right direction and the diploma was for many years the hall-mark of a well-trained midwife, this did not satisfy Champneys, and he fought hard for the next twelve years to achieve his ambition of making motherhood as safe as possible by establishing a compulsory training and qualification for all midwives, thus finally abolishing the unskilled "handywoman," the cause of so many maternal and infant deaths.

This proposal met with the bitterest opposition from inside and outside the medical profession, but Champneys drove fearlessly onward in his crusade that was to save the lives of millions of British mothers and their babies. Stirred up by agitators in the profession, the General Medical Council threatened the Obstetrical Society with anathema for infringing the Medical Act and deceiving the public, and even hinted at the word "infamous" being applied to the officials of the Society who signed the midwives' diplomas. The agitators claimed that they were "creating a new order of medical practitioners," to which Champneys replied (in his presidential address to the Society in 1895): "This is as correct as the classical definition of the crab which was criticized by Cuvier; it is perfectly accurate, except that (1) we have not 'created' any persons at all; (2) midwives are not 'medical practitioners' (in the technical sense); and (3) if either doctors or midwives are 'new,' I fear that history tells us with no uncertain voice that midwives antedated doctors by an enormous length of time. It is hardly too much to say that midwives must have begun nine months after there were two women and one man on the earth." He was attacked by many of the general practitioners for taking the bread out of their mouths and received threatening letters, but nothing was able to deter him from the great task he had set himself. He showed conclusively that "any person is at liberty by the law of the land to render aid to any other in time of sickness if desired; any person is at liberty by the law of the land to receive such aid from any other; unskilled aid leads to lamentable consequences to poor mothers and children; midwives are a necessity." "The question," as he pointed out, "is not whether midwives shall exist, but whether they shall be as good or as bad as possible." The registration of midwives was, in fact, the best protection of medical men against the usurpation of their medical functions.

By close reasoning, fearless fighting, and scrupulous fairness Champneys gradually won the admiration and support of the profession and of the general public, till in 1901 he persuaded the Government to promote the Midwives Bill, which was passed the next year, following which he was entrusted with the extremely delicate and difficult task of conducting the affairs of the new Central Midwives Board, a task which he fulfilled with outstanding success for the next twenty-eight years, never missing a meeting until his last illness.

On Sept. 1, 1890, Matthews Duncan had died, and in the following January Champneys was invited by the Governors of St. Bartholomew's Hospital to succeed his old teacher as physician accoucheur to the hospital. The title of this post was a relic of the time when caesarean section represented practically the only cutting operation in obstetrics, and this tradition had survived the expansion of surgery resulting from the two great discoveries of anaesthesia and asepsis, so that abdominal surgery for gynaecological conditions was still carried out by a surgeon on the staff, in this case Harrison Cripps, and not by the physician accoucheur, though he was a skilful surgeon and operated frequently on his private patients. On Champneys' retirement both the scope and the name of the post were changed, but the former physician accoucheur was wont to comment with regret that the younger members of his specialty had become too surgically minded.

Champneys and Cripps were thus very closely associated for many years. His tenure of this post from 1891 to 1913 was a period of ever-increasing and more varied activity, during which he rose to undisputed pre-eminence in his branch of the profession and acquired a world-wide reputation.

The traditions of his profession were to him a precious heritage to be guarded at all costs, and this is well brought out by a passage in his presidential address to the Obstetrical Society, from which I have already quoted: "A patient is a person who requires a doctor; a doctor is not, in the same sense, a person who requires patients. A patient is not, primarily, an organism for extorting so many guineas or shillings per annum, as an aphis exudes syrup at the titillation of an ant, or a cow secretes milk under the blandishments of a dairymaid. This is a fact often forgotten."

In spite of his numerous preoccupations, music was never entirely neglected, as is shown by his composing during this time several tunes for his friend Stainer's "Hymns Ancient and Modern," writing a number of articles for the "Dictionary of Musical Terms" produced by Stainer and A. W. Barrett in 1876, and forming a private choir about 1878. He also employed his musical gifts to the benefit of his hospital, and Sir Norman Moore wrote of him, in his *History of St. Bartholomew's Hospital*, that "as a learned and admirable musician he benefited the school of St. Bartholomew's by encouraging the practice of music there." When on July 25, 1893, Winchester College celebrated the quincentenary of its opening a performance was given of the "Carmen Saeculare Wiccamicum," with words by G. H. Cremer and music for four voices with organ and pianoforte obbligatos composed by Champneys. He was a frequent visitor to the organ loft at St. Paul's Cathedral during the times that his friends Sir John Stainer and Sir George Martin presided there.

Reference has already been made to the events which led up to the passing of the Midwives Act of 1902, in some ways the crowning achievement of Champneys' life, but by no means the last important contribution which he made to the advance of his specialty and the welfare of the whole profession and nation. Of his work as chairman of the Central Midwives Board his successor, Dr. J. S. Fairbairn, wrote: "For 27 years he was annually re-elected by its members as chairman of the Board and, more than any other of its members, was responsible for moulding its procedure and policy. Its early problem was the difficult one of a new and untried body gaining the

confidence of the divergent interests represented by the practising midwives it controlled, the general practitioners that came to their aid, the medical officers of health who supervised their practice, and the teachers who had to follow the Board's instructions on training. That the new body succeeded in working smoothly and avoiding serious controversy, even so far as to secure general approval, was a remarkable tribute to the sagacity and tact of the man at the wheel. His was no nominal chairmanship, for he was always in touch with the business of the Board and word perfect in his part before each meeting; he was ready to sum up each item on its agenda and had a resolution in draft prepared for discussion."

In 1910, in the first honours list of his reign, King George V conferred upon him the honour of a baronetcy. In the same year that the Central Midwives Board came into being Sir William Japp Sinclair, of Manchester, with the support of Champneys, John Williams, and C. J. Cullingworth, founded the *Journal of Obstetrics and Gynaecology of the British Empire*. Champneys was a director of the journal company from the first, and in 1907 succeeded Sir John Williams as its chairman: and when, after its suspension in 1915 because of the war, it was revived as a monthly publication in 1921 he was again elected chairman and persuaded to retain that post in spite of his advancing years, because, in Dr. Russell Andrews's words, "we could not possibly find a more efficient or more trusted chairman." Sir Comyns Berkeley, who was editor of the revived journal, has recorded that, fearing he could not devote sufficient time to ensure its success, he wrote to Champneys, who at the end of a characteristic letter of encouragement remarked, "Medical men who are too busy to do anything, according to their own report (and still more of their wives), have generally little to do."

His long and distinguished connexion with the Royal Society of Medicine started with his membership of at least two of the Societies whose amalgamation in 1907 brought the R.S.M. into being. As has been already mentioned, he had been since 1876 a Fellow of the Obstetrical Society of London, but he had also been a prominent Fellow of the Royal Medical and Chirurgical Society of London and a frequent contributor to its *Transactions*. He was therefore eminently fitted to play an important part in the task of amalgamating thirteen separate societies representing the different branches of medicine and surgery. His international standing in his subject was shown by his election as president of the Section of Obstetrics and Gynaecology at the 17th International Congress of Medicine held in London in August, 1913. Another activity which was to take up a great deal of his time and energy was the General Medical Council, to which he was appointed as a Crown nominee in 1911, and of which he remained a member until 1925. When in 1911 the National Insurance Bill was under heated discussion Champneys was the chairman of a sub-committee of the Council which formulated their comments on the proposals in regard to maternity benefit. Sir Norman Walker has written of his activities on the Council that "he was a very valuable committee man, and his opinions were much valued and respected."

A good description of him at "Bart's" in his prime was given by the late J. D. Barris, who was one of his favourite interns and later succeeded Champneys on the honorary staff. "Those of us," he writes, "at St. Bartholomew's Hospital who trained and served under him have vivid recollection of his striking presence. We felt in him the man of character and of high ethical and moral standards, so that later he became our example and guide in all that concerned the management of our patients and our professional conduct. He spoke to us with the voice of authority, and we listened to him with admiration and respect. He was so clear, incisive, prompt, and businesslike. His punctuality was proverbial; we knew when two o'clock would strike (for that was the appointed hour of his afternoon round in Martha Ward), that at this hour precisely he would sweep across the square in his open landau, for this was before the days when motors had ousted the more graceful carriage and pair. Arrived at the foot of the seventh block, a short, virile handsome man would alight and as often as not would scorn the lift in order to go to the third floor by the stairs, taken at the run all the way, his intern and students panting after him, unless we had had the foresight and time to forgather in Martha Ward beforehand. Later still it was the privilege of some of us to know him as the adviser and friend to whom we could always turn. He was without doubt a great public servant who advanced the interests of his subject and shed lustre on his hospital."

During the 1914–18 war he not only continued to conduct the affairs of the Central Midwives Board but in addition he travelled about 20,000 miles lecturing to the troops on venereal disease on behalf of the National Society for Combating Venereal Disease, now the British Social Hygiene Council. After the war, at the request of his old friend Sir Clifford Allbutt, he undertook the chairmanship of the Examiners of Midwifery at Cambridge, though he was then over 70 years of age. He greatly enjoyed the companionship of Allbutt, with whom he always stayed on these occasions. In 1922 his wife died, and at the end of the funeral service at St. Alban's, Holborn, he walked across to the organ and played some of her favourite music, saying it was the last little bit he could do for her except prayer.

One of the last contributions which he made to the advancement of his specialty was to use all his influence, experience, and tact in helping the foundation of the British (now the Royal) College of Obstetricians and Gynaecologists, and in recognition of these services the College paid him the highest compliment in their power by electing him a Vice-Patron. Dr. Russell Andrews has recorded that in a conversation with him only six days before his death he showed a lively interest in the College and in the proceedings of the latest Council Meeting, which he had been unable to attend on account of illness. So on July 30, 1930, Sir Francis Champneys, then in the 83rd year of his age, passed away peacefully at the Sussex home he had loved so well, having given the mothers of his country a fully qualified midwifery profession in place of a body of ignorant and dangerous handywomen and having raised the status of obstetricians and gynaecologists by a lifetime of devoted and unremitting labour, always giving God the praise.

Grateful acknowledgment is made to the Editor and Proprietors of the *Journal of Obstetrics and Gynaecology of the British Empire* for permission to quote freely from their "In Memoriam," published in 1930, Vol. 37, No. 3.

MR. BEVAN ADDRESSES ALMONERS

The Minister of Health, Mr. Aneurin Bevan, addressed the annual meeting of the Institute of Almoners on March 12, Prof. Alan Moncrieff presiding. Mr. Bevan said that the duties of the first hospital almoner, appointed to the Royal Free Hospital in 1895, were to prevent abuse of the hospital by persons able to pay for medical treatment, to refer persons already in receipt of private relief to Poor Law authorities, and to recommend suitable persons to join provident dispensaries—a rather meagre programme which went only a very short way indeed to revive the generous profession of almoner in the mediaeval monastery. The first hospital almoners were little more than means-test agents, concerned much more with the financial help of the hospital than with the mental and physical help of the patient. Much progress had been made since then; the concept of "social medicine"—an awkward phrase—had arisen, and it was now understood that the work of the doctor failed of its full effect unless reinforced by such work as the almoner could carry out in connexion with the social background of the patient.

Under the new Health Service, Mr. Bevan continued, it would no longer be necessary for the almoner to concern herself with the financial position of the hospital; her concern would be solely with the patient. The anxiety of large sections of the population—and those not the poorest—concerning doctors' bills and hospital payments would disappear. This was one of the most important revolutions which had ever taken place in the treatment of the sick. The almoner would represent the patient to the hospital management committee; she would see that proper facilities for his accommodation were provided—waiting-rooms, canteens, all that sort of thing—and she would link up hospital services with general-practitioner and local-authority services on the one hand and with resettlement and rehabilitation services on the other. Her duties would be

further enlarged later on when health centres were developed. It was one of the most regrettable features of our present materials shortage that it had not been possible to develop health centres as quickly as had been hoped. It was never expected that health centres would spring up by July 5. The more ambitious programme would have to wait until more resources were available, but wherever it was possible to adapt an old building or to use a new building a start on health centres would be made.

The Health Service not a Bureaucracy

After speaking of the value of the almoner's work in cases of incipient mental illness, Mr. Bevan went on to say that consultation among those working the new Health Service would take place to a greater extent than it had ever done before.

"We do not want the Health Service of the future to be a bureaucracy. That is the very last thing we want. We want health workers in every field to be organized and represented on the various bodies, so that policy from time to time may be shaped and directed by the workers themselves in the various health fields. For the first time this will be possible, and of course for me or any Minister of Health this is essential. The National Health Service Act is not like some other pieces of legislation. The Minister of Health is responsible to Parliament for the whole health system. The responsibility of the Minister of the Crown to Parliament is the medium by which all health services will be brought to public accountability. . . . After July 5 the Minister of Health will be the whipping-boy for the Health Service in Parliament. Every time a maid kicks over a bucket of slops in a ward an agonized wail will go through Whitehall. After the new Service is introduced there will be a cacophony of complaints. The newspapers will be full of them. I am sure some doctors will make irate speeches. The order paper of the House of Commons will be filled with questions, and for a while it will appear that everything is going wrong.

"As a matter of fact everything will be going right, because people will be able effectively to complain. They complain now, but nobody heeds them. What the Health Act will do after July 5 is to put a public megaphone in the mouth of every complainant so that he will be heard all over the country. As the months go on and the limelight of publicity is brought to bear upon every aspect of the Health Service, for a while it will be almost intolerable. But this public scrutiny will have a medicinal effect. Everybody will be on his toes. Everybody will know that his actions are liable to be matter for public debate. The Minister in the House will be a shock-absorber between Parliament on one side and the vast body of health workers on the other. This period of interrogation is an essential prerequisite for the organization of the Service. You almoners will be able on many occasions to provide an emollient, and to the extent you do your work properly and intelligently my own work will be eased.

"The Health Service," said Mr. Bevan in conclusion, "is being launched in stormy waters, but then the launching of any big ship causes considerable water displacement. It was hopeless to expect such a service to be started without controversy. But it will be a very great revolution. It is being watched by every country in the world. There will come over here a stream of visitors to find out how it works and how its difficulties are being resolved. We shall of course find from time to time that alterations and adjustments have to be made. We are not ridden by doctrine; we are a nation very largely of visionary empiricists, able to adjust things where necessary, and between us we shall have a standard of health service that will be the envy and admiration of the world."

In reply to a vote of thanks Mr. Bevan further said that the polemics surrounding the Service would soon disappear and be settled. Whatever might be their quarrels or their policies, these were relatively quite unimportant when the work they had to do was considered.

Sir Ernest Rock Carling, a member of the Executive Committee, who introduced the annual report, said that 790 candidates had been interviewed during the year for the post-war emergency courses of the Institute. The first hundred to qualify in these shortened courses had had little difficulty in securing posts of all types. During the year 203 certificates altogether had been granted, about half to candidates who had qualified after the shortened course and half after the normal course. The number of members on the register was just over 1,000. The wastage rate due to matrimony was very high. Sir Ernest pleaded that the training of the almoner, at present supported on the fees of students alone, should be subsidized by the Government.

THE COMMONWEALTH FUND

One of the examples of selective philanthropy for which the United States is noted is the Commonwealth Fund, which last year appropriated 1,614,000 dollars for programmes and special grants in the field of medical education and research and public health and mental health services. The Commonwealth Fund was founded twenty-nine years ago, at first as a service for delinquent and problem children. One of its first achievements was an institute for child guidance in New York, where teachers for child-guidance clinics might be trained. Its second project was a child health service which was set up in a number of States. From this it moved to the betterment of American health by means of the rural hospital, assisting communities where hospital facilities were difficult of access. The Fund then widened its activities to support research and teaching in medical schools. In a retrospect of its work it observes:

Medical education is basic to nearly everything that the Fund is trying to accomplish. It is the only sure road to comprehensive medicine. It underlies public health work. It is a daily objective of the well-conducted hospital. It is inseparable from medical research. . . . But medical education is in ferment; ideas long in germinating are beginning to bud furiously like yeast. The Fund shares with medical educators everywhere a deep concern that physicians shall be taught, and shall have opportunity to teach themselves, how to practise the best contemporary medicine.

Finally, thanks to the warm friendliness of its founder, the late Edward S. Harkness, towards the British people, the Fund established a number of fellowships for British students. From 1925 until their suspension during the war these fellowships had entitled over 400 students, technicians, and Civil Servants in Great Britain and other parts of the British Commonwealth to spend some time—usually two years—in the United States with ample opportunity for the studies they wished to follow and for extensive travel. The fellowships have now been resumed, and in 1947 the normal quota of twenty were awarded by the British committee, under the chairmanship of Sir Walter Moberly, to students at British universities, not all of them for medical studies, but some for studies in political science, economics, international law, and such subjects. The six fellowships for medical studies were at Harvard, Columbia, and St. Louis, and the subjects endocrinology, forensic medicine, cardiovascular surgery, psychiatry, and haematology.

In the twenty-ninth annual report of the Fund an account is given of its stewardship during the past year. It has continued to assist medical education in many of the American universities, has made grants for the development of public health services in six States, and has subsidized various mental health projects, including two in Great Britain. Thirty-four investigations on medical subjects at twenty American universities or other scientific institutions have received some support from the Fund during the year, and as a result of these subsidized projects twelve works and about 135 medical and scientific papers have been published.

"The analysis of the genetic basis of emotional behaviour thus remains a field for the future. On its investigation may well depend the acquisition of knowledge of fundamental importance to human education and behaviour. We have neglected such study because of a quixotic and erroneous belief that studying the emotional behaviour or misbehaviour of even young human beings was tabu. The blind and impractical worship of euphonious but sterile dicta of unscientific leaders, who have mistaken 'declarations' of human equality for truth, have too long held us spellbound. All around us are tragic evidences of the evil that uncontrolled or prostituted emotion can create. Our own place in the family of nations has been perilously risked and is still insecure because of this factor which is still abroad in the world. Even the basis of our own emotional control and integrity within the bounds of our national and personal problems is still largely a jungle of ignorance. Expensive social, economic, and educational systems present impressive exteriors but are unsound at the core, because the human beings of which they are made remain largely well-dressed, housebroken savages whose behaviour remains creditable only so long as the strain on it is not too great. There is no reason why emotions cannot be studied and trained as well as intellects, so that the risk of their exploitation and disintegration can be decreased, to the greater security and happiness of all."—"Parental Influence," by C. C. Little, in *Genetics, Medicine, and Man* (Cornell University Press, 1947).

Correspondence

Signs-manual of Freedom

SIR,—I am sorry that my article in *The Sunday Times* (not my letter to *The Times*) horrified Dr. John V. Mainprise (March 13, p. 519). My reason for picking out remuneration by capitation fee and right of appeal against dismissal was that I was dealing with the acceptance of those two principles by the Northern Ireland Act. Though it is true that, as a consultant, the retention of goodwill does not affect me directly, I have tried to make it clear that *all* the signs-manual of a doctor's freedom—and this is one of them—are of vital interest to every one of us.—I am, etc.,

London, W.1. HORDER.

Ownership of Goodwill

SIR,—At a recent B.M.A. meeting many doctors expressed a desire to yield to the Minister of Health on any points not absolutely essential to the preservation of our freedom. In this connexion the question of the purchase and sale of practices was discussed. I think that the distinction, in this case, is not merely between the abolition of the purchase and sale of practices on the one hand and the preservation of this custom on the other, but rather between a centrally administered and monopolistic control of the appointment of doctors to all spheres of medical practice on the one hand and some more democratic arrangement on the other.

It has been argued that a doctor selling his practice is actuated in his choice of his successor by considerations other than the suitability of the purchasing doctor to conduct the practice. This may be true, but we have Willesden to remind us that considerations other than medical proficiency may influence public bodies responsible for making medical appointments. In this connexion it would be well for members of all political parties to remember that, whatever they may think of the present Minister of Health, the Minister of the future may belong to the extreme "left" or the extreme "right" politically, and there is no doubt that the administrative structure of the new Act would offer a magnificent opportunity to a Communist, should such a one, by that name or any other, one day assume the office of Minister. A man loses his freedom when he loses his right to change his employer should he object to the terms of his service, the character of the service he is instructed to give, or to any other conditions, political or otherwise, imposed upon him.

It has been said that a doctor selling his practice does not necessarily concern himself with the professional ability of the incoming doctor, but against this I would argue that the purchasing doctor has to assume responsibility for his own ability. He has to decide whether he considers himself competent to conduct a general practice or not, and he knows that the patients will pass judgment upon this important matter in the near future. He will not lightly make a wrong decision knowing that if he does so the goodwill of his practice, for which he has paid, will dwindle away. It is a matter between the doctor himself and his patients, whose servant he is, and I believe that he and they are the people best able to judge his competence.

The problem of to-day is the failure of faith in man the responsible individual and the deification of the State "as the universal provider and the authority determining all thinking and willing" (see quotation from C. G. Jung's *Essays on Contemporary Events* in Dr. Ahrenfeldt's interesting letter—March 13, p. 516). The question men have to decide is whether they will maintain their faith in the man on the spot, aware of conditions and of the results of his decisions and actions, or the man remote in the fastness of Whitehall. Where faith rests, there responsibility and power should rest also. It is for the patients themselves to decide whether they would prefer to have their doctor appointed for them by the State or whether they would prefer to exercise some responsibility in this matter through the democratic power of valuable goodwill, a power vested ultimately in their own hands.

The goodwill of practices is worth a very large sum of money. Money is power. When one speaks of the power of money people are apt to think of a few rich people exercising undue power over others. They forget that as the wealth of a country becomes more evenly distributed among its members so the power of money becomes increasingly a democratic one. So it is with the power derived from the value of goodwill. This power is vested ultimately in the hands of the patients themselves. Is it wise to take this power away from the many and centralize it? Is it wise to do this at any time, and particularly now, when the threat to our freedom and to the whole structure of democracy is like the hot breath of some devouring animal upon us?—I am etc.,

Reading. BETTY F. HILL.

SIR,—I am in entire agreement with the views of Drs. Ida M. Will, J. H. Francis, and R. A. Furniss (March 13, p. 519). Provided they are satisfied that the Northern Ireland Act does not conflict with our "Principles," the B.M.A. Council should state clearly, emphatically, and with every method of publicity available: "The Northern Ireland Parliament has passed a Health Act similar to the one in this country but without its objectionable features. If such an Act were adopted in this country, with only one modification, we should be prepared to advise our members to accept service under it immediately." Such a statement would be well within the understanding of even the meanest intelligence among the general public.

Modification: ownership of goodwill. The Minister is taking away from us something that has stood the test of time without replacing it by a satisfactory alternative. Few of us like squatting, few of us obtained our present goodwill by squatting, and fewer still of us who have spent long years in insalubrious areas care for the thought that, in order to obtain a change of scene in later life, we shall have to go through the process of squatting (always an undignified posture even on physiological occasions) without even the capital from our previous goodwill on which to live during the lean years. Convertible Government bonds in lieu of the present never-never system of compensation would help to alleviate this. For the young man embarking on practice for the first time the only alternative would be a real encouragement to enter partnership with an existing practitioner; how this could be made to function equitably without some element of purchase of goodwill in the partnership either by cash or by extra work I cannot fathom.

May I suggest, Sir, a reprint of your leading article of Sept. 20, 1947? We do not all, I regret to admit, file away our old *B.M.J.s*.—I am, etc.,

Edlington, Nr. Doncaster. R. S. GILCHRIST.

Dr. Taylor and the Health Service

SIR,—In your leading article (March 6, p. 454) you criticize some of the points in Dr. Stephen Taylor's letter published in the same issue (p. 463). You will no doubt receive many letters from other readers about that same letter, which, however, raises so many controversial issues that I feel that an extra letter may not be superfluous.

Dr. Taylor in his opening sentence says he is "a Labour Member of Parliament who happens also to be a doctor" and thus sets the standard of his whole letter. "The Labour Party has accepted the Act," "our Labour Party," and many other such pointers are sprinkled through it. Here, surely, naked, unashamed, and nauseating is the epitome of partisan approach which has done so much to make this Act anathema to so many doctors. Here speaks the arrogance of a political party at present in the majority, with the lack of respect for the opinions of others, however fitted the latter may be to advise on a highly specialized subject, which has already been made notorious by Mr. Shinwell and the "tinker's cuss." Dr. Taylor makes great play with the fact that the other political parties support the Government over many points in the Act, and Mr. Bevan in the House of Commons tried to make capital of the fact that the B.M.A. had not seen eye to eye with previous Ministers of Health any more than with him. What better proof is there that the B.M.A. is not a party political organization? Surely through the fog of political squabbling emerges the fact, clear to all but those who do not wish to see, that the medical profession opposes this Act for the same reason that it has opposed the others—because it is a bad Act. When a Government of this country introduces a good Bill (and such a Bill could easily be produced by consultation between experts in the Government

and experts in the profession) then I am sure that Government, whatever its political colour, will have the fullest support of the medical profession and the B.M.A.

Dr. Taylor says he is concerned primarily with the needs of his constituents for more doctors. Why then is he so wholeheartedly in favour of an Act which will spend millions of pounds (many of which will come from his constituents) and give them neither hospital beds, health centres, nor more doctors for many years? Since he "happens also to be a doctor," the implication is plain!

Dr. Taylor also points out that any Government in the future can alter decisions arrived at now, a point frequently stressed by the B.M.A. But he does not seem to draw the moral that seems obvious—namely, that we should therefore keep our heads out of the noose. He says we all want to avoid bureaucracy. So we do, so why support an Act which is going to saddle us with yet another army of bureaucrats at a time when our man-power is said to be short? Surely we have enough already.

Dr. Taylor asks every doctor to think over carefully the issues at stake. To my mind, and I believe to the minds of many other younger members of the profession, the fundamental issue is quite clear. It is freedom which is at stake, and that is always worth defending. The points at issue are the outward and visible signs, but their significance goes much deeper. If the B.M.A. were to yield in these points, even though plausible people would have us believe they are unimportant, then the freedom of the medical profession in this country might well be lost for good; and as we have seen in the last ten years, medicine is a flower that does not flourish in captivity.

Dr. Taylor finishes his letter with some words of advice to the profession. It seems to me that because some people have voted for him and returned him to Parliament that does not qualify Dr. Taylor to proffer advice to a highly educated and trained body of men who, perhaps more than any other body of men in the country, are able to think for themselves. However good the intention, I am sure many will agree with me when I say that I consider it impertinence and conceit of a really amazing degree.—I am, etc.,

London, S.W.3. H. E. LOCKHART-MUMMERY.

Profession's Independence

SIR,—The foundations of the new Health Service (the health centres, the hospital extensions, and the increased facilities for training medical students) are not in sight, let alone under construction. The attempt to bring in the full Service on July 5 next is to risk everything without bringing benefit to anyone. The effect on the schools of the Education Act, in spite of the emergency training courses for teachers, is a lesson to us, and on these grounds alone the operation of the Act should be postponed.

But Dr. F. M. R. Walshe's letter (Feb. 28, p. 407) is timely. It becomes increasingly clear that the real issues before us are moral and ethical, and we must not be distracted by practical details which are by comparison of little importance. Attention should be fixed on the persistently inadequate presentation, and frequently misrepresentation, of the doctors' case in Parliament and certain sections of the Press, notably *The Times*. The views of the minority who approve of the Act in its present form are less important than the belief that all who oppose them are activated solely by a "determination to sabotage the Labour Government" or motives of monetary gain. Clinical or ethical issues requiring a sober and reasoned analysis are clouded by political prejudice or a materialist philosophy of life that precludes the holders from conceiving, let alone understanding, any other viewpoint.

Dr. Stephen Taylor (March 6, p. 463) is probably right when he contends that any safeguards for the doctors' freedom secured by amendments to the Act would be of little or no value, as Parliament could modify such provisions at any time. It is therefore essential that no steps should be taken that could in any way weaken the profession's independence. With the lights once again going out in Europe this is no time for the doctor to give up the control of his means of production, together with his freedom of speech, thought, and action. If we as doctors fail to give a moral lead at this point we shall lose the trust and respect of our patients, and deserve to do so.—I am, etc.,

London, W.1. ALAN MABERLY.

Deprivation of Initiative

SIR,—Dr. G. C. Pether (Feb. 28, p. 411) calls attention to the psychological effects of the Minister of Health's proposed medical service and invites opinions. I would agree with him that there would be likely to be unhappy psychological repercussions were doctors to try to work under the conditions proposed in the new Act as it stands at present. Dr. Pether states that there would be "cramping and thwarting of the personality inherent in the massive schemes of the planners."

Regimentation, interference, and exploitation would be rife—all factors that conduce to a neurosis in the Serviceman in wartime. Nietzsche divides men into slaves (or the masses) and the higher man. By this latter he implies one who is happy in his capability to indulge in original thinking and to this extent to take risks, as opposed to the majority who, putting safety first, need security and are willing to entrust their welfare to some authority that will work to this end. Such are unhappy if they even think individually. Doctors should not be encouraged to put themselves into this group. Where authority denies to any minority group of men permission and opportunity to develop freely and expand (in their own time and way)—should they wish to do so—the end result can only be to build up inwardly protests and hate towards such a frustrating authority. This is bound to slow up activity and so prejudice efficiency.

Negative affects can only be dealt with in one of two ways. (1) Either they lead to the adoption of an unhealthy subservience (or slave reaction), brought about by the enforced blinding of the critical faculties—good for neither masters nor slaves—or (2) they lead to an apparently peaceful acceptance by the group with a liability to periodic violent outbursts, most harmful to the satisfactory evolution of a planned and progressive service such as we would all wish to see. Dr. F. M. R. Walshe in his excellent letter (p. 407) entitled "The Commonplace Mind" reinforces this point of view. He quotes from *The Revolt of the Masses*, by Ortega y Gasset, who asserts that "the mass crushes beneath it everything that is different, everything that is excellent, qualified, and select." It will be a sad day for the world when democracy becomes identified with the mass that crushes out original thinking and with it all that psychological treatment aims at encouraging. It is only a comparatively small number of men that can think objectively without emotional bias creeping in and distorting perspective. They should be encouraged, not discouraged.

In your annotation (p. 399) you refer to the importance that educated men attach to the freedom to criticize the administration of the service in which they serve. Were this not to be permitted it would be a bad thing for the service itself—as occurs in the R.N. and R.A.M.C. The medical profession, because of its training, which is essentially concerned with basic and physiological facts of life, is best qualified to think objectively. To do efficient work doctors must not be regimented as a profession. As Dr. Pether puts it, they should be left free to develop as fully adult individuals. In other words the job of the medical man, whether a psychologist or not, is to help his patients to become adult so that they may think ahead and do their own planning. This will be the more difficult for doctors to do if they are to be themselves forced into a service in which they are deprived of all initiative and all powers of criticism of the administration.—I am, etc.,

London, W.1. CYRIL WILSON.

Doctors who Might

SIR,—Most of your correspondents appear to agree that the retention of the ownership of goodwill is of paramount importance, and there can be no doubt that if we lose it we shall be in a very poor position to negotiate with the Government if it should choose to introduce new and unwelcome measures at some future date.

Lieut.-Col. James T. Harold (March 13, p. 518) refers to ex-Service doctors, etc., who might be induced to undertake service under the Health Act owing to economic pressure, but such people should consider matters very carefully before taking such a step, however difficult their present financial circumstances. It is obvious that a salary of £300 p.a. implemented by a few transfers from established practitioners at 15s. 2d. per head will not be sufficient for them to subsist on, whereas,

with the retention of goodwill, purchase price could be borrowed on life insurance at a gross cost of 12% p.a. spread over 10 years (about 9% after income tax rebates have been deducted), and at the end of that time the capital (greatly increased if we have inflation) would be realizable if the doctor should wish to move elsewhere.

Let the would-be entrant to general practice realize that we, the established practitioners, are fighting *his* battle as well as our own for freedom in our professional life. If we stand out, as I for one intend to do, against the financial pressure which is being brought to bear against us, the opportunist will have the option of entering the Service and gaining a practice at the expense of those of us who are adhering to our principles. To put it briefly, if we, the established practitioners, were to accept the Act, the new entrant would have to "put up his plate" at £300 a year, but if we refuse he would be in a position to reap a rich harvest. Let anyone considering the latter course examine his conscience and decide whether it will allow him to gain a living at the expense of those who are striving to maintain the rights and freedom of the profession for generations to come.—I am, etc.,

Kirkby-in-Ashfield, Notts. J. D. DURANCE.

The Independence Fund

SIR,—Is it of any use to reiterate our reasons for refusing to accept service unless we also counter the economic threat which the Act presents? It surely is this which makes the Minister feel that he only has to sit back and say nothing. He is well aware that a large number of doctors have such liabilities that, when they know that certain neighbours already have decided to join and that others are in the same dilemma as themselves, they may be overwhelmed by the fear of bankruptcy. The obvious remedy is to raise such a sum of money by subscription and guarantee that these members may feel completely independent. If we have sufficient conviction we certainly can do this.

The sum I would suggest is of the order of £20,000,000, or an average of £500—the price of a car—from each of the 40,000 doctors who voted "No" in the plebiscite. Many, of course, can guarantee very much more than this, just as many cannot afford nearly so much; but for all it will be a question of the price at which they value their liberty. Twenty million pounds will allow £3,000 to each of 5,000 doctors, with £5,000,000 to give temporary assistance to specialists and consultants.

The first effect of the scheme will be to show the Council how many are prepared to stand firm. The second, if this is really "our finest hour," will be to show how strongly and sincere our convictions really are; and because of this I believe that Mr. Bevan, who, after all, is staking his political future, would meet us in a very different spirit, and that we might hope to have such amendments that all who wished could join happily and cheerfully.—I am, etc.,

Beckenham, Kent. W. MAXWELL PENNY.

The Doctor's Oath

SIR,—In some of your leading articles and in many of the letters which have recently appeared in the *Journal* there has been a recurring and an increasingly insistent stress laid on the question of the doctor's conscience in relation to taking service under the Act. Most of the writers rightly draw attention to the fact that the doctor's primary duty is to his patient and not to the State, and that this centuries-old tradition of primary service to the patient will be greatly endangered or completely nullified by the intervention of a State paymaster. In the terrifying spread of State power which we are witnessing in the world to-day it was never more true to say of all men, and particularly of doctors, that no man can serve two masters.

Many doctors, if not most, feel themselves vaguely bound by the ethical precepts outlined in the Hippocratic Oath. Unfortunately, however, neither the original oath nor its later Christian modification is now taken by doctors, either before or after graduation. In a recent letter to a lay journal Dr. Tudor Jones has expressed the opinion that if the oath, particularly its Christian form, had been taken and kept by every doctor the introduction of the present Act would have been impossible. In outlining how the original meaning of the Oath has, of set purpose, been steadily whittled away, he goes on to state: "It is a truism of politics that power does not vanish; it can only be transferred. The history of the Medical Oath is the history of the transference of power from the individual to the 'State.' It is a long history. The effect of the transference is the reign of the immoral law in place of the Moral Law."

While vigorously opposing the introduction of this Act by all practical means, many doctors are realizing that we have been betrayed into a false position by this continued undermining of the moral basis of our profession. Most of us have been rather late in recognizing this process, so the movement to reverse it should begin now. Might I suggest that the administration of the Christian form of the Medical Oath be revived, that doctors already qualified should be given the opportunity of taking it, and that we press on the medical faculties and the Royal Colleges the desirability of reintroducing the Oath as an integral part of the graduation ceremony?

I can well understand the mind of those who would consider my suggestion to be a long-term solution for a short-term problem, but I would point out that the fifth of July is not the Last Day. Neither, unfortunately, is it the First Day. The profession has lost one defensive position after another through the habit of dealing with the symptoms of a social and moral disease as they happened to appear. It is now time to deal with the disease itself, its cause, and the only sound method of cure.

I would be grateful if any doctors interested in the practical realization of the above project would write to me at the address below.—I am, etc.,

17, Monkhams Avenue,
Woodford Green, Essex. L. P. GRAY.

Petition against the Act

SIR,—Continually we are told that Parliament represents the "will of the people." Is this so? I worked during 1946 in a very large panel practice in an industrial area in the Midlands, where I spoke with many patients about the Health Act, and not a single one wanted their doctor to be a State-controlled doctor but a free man. Since then, working in this very rural practice I have found only two patients who appeared (rather half-heartedly, though) to approve of the Act, or, rather, to side with the Government against the doctors.

The Government will be convinced that this Act is against the wishes of the people only if it is shown definite proof that this is so. In order to obtain this proof I suggest that the B.M.A. organizes immediately a petition to be sent to the Prime Minister. If the public are circularized with a clear statement of the doctors' objections there will be at least a 75% majority of the population who will vote against the Act. If paper shortage renders circularization impossible then I suggest that in each district public meetings are arranged by doctors (all the doctors of that district appearing together on the platforms), and the public made aware of our point of view and an opportunity be given to sign the petition. The petition could also be signed in our waiting-rooms.—I am, etc.,

Wool, Dorset. THOMAS B. L. BRYAN.

Building without Bricks

SIR,—July 5 is not far distant, and I think it is now necessary to drop, once and for all, discussion concerning "doctor–patient relationship," freedom, moral issues, and a hundred other etceteras. What I want to know is, How can we give a better health service if we have no more hospital beds, no more staff for the hospital, no new clinics, and no new equipment, etc.? Will the patients be better served after July 5? I do not think so unless we have at our disposal the means to give them better service. We require better tools and we will finish the job, but the mere introduction of a scheme does not make matters one bit better for a patient who cannot get treatment. It is perfectly clear that the introduction of the scheme is premature, as we have not at our disposal the means to carry it out.

Once again, turning to the practitioner who is going to earn his living by working a satisfactory scheme, I want to warn him that payment by capitation fee—i.e., 15s. 2d. to 18s.—

is going to spell financial failure, more especially if he is a rural practitioner with a small panel who derives the major part of his income from private patients. You may have private patients after July 5, but not for very long. I will close by asking one more question: Is a practitioner's experience in years of practice of no financial value?—I am, etc.,

Callander. F. C. M. MCILWRICK.

A Compromise

SIR,—May I suggest a compromise which might retain our essential freedoms while allowing the Government to meet our demands? (1) Basic salary to be paid to doctors in under-doctored areas only; all doctors to be free to enter public practice anywhere on capitation fees only. (2) The General Medical Council and the new Tribunal to be merged into a new body, an improved G.M.C., which will keep the *Register* as at present. (3) Compensation for goodwill to be paid at the earliest possible date, and sale of house or surgery to be unrestricted; a doctor should be free to sell his own property for what he can get for it, and when health centres are provided there will be no need for an incomer to buy a surgery. (4) When a doctor retires from the area all his patients should be asked to choose again.

Point 1 above removes the need for direction, helps those who want help, and allows a doctor who so wishes to semi-retire to a quiet area. Point 2 avoids the appeal to the Courts issue. If a doctor is unfit for the public service he is unfit to be on the *Register*, and vice versa. Point 3 would satisfy some of the critics of buying and selling and would encourage doctors to enter existing practices as partners or assistants, chosen by those they are to work with, of course, rather than squat and hope for the best. Point 4 would remove the illusion that patients are bought and sold. I hope that these suggestions will not be dismissed as weak, for I think that we have here the desired freedoms so far as is possible in a 100% service. Our present unyielding attitude can only wreck the whole scheme if persisted in. May I say that I propose to stick to the majority if it remains large enough, but I do feel we could make the next move towards a settlement.—I am, etc.,

Paignton. J. F. BURDON.

Postpone Until Workable

SIR,—After attending the meeting of the Scottish Representatives on March 10 I left with a feeling of complete insecurity. Practitioners of my age who have been working on their own for about thirty years are asked to accept conditions under an Act of which they disapprove and also to be in complete dependence upon an income fixed by the computation of their share of a certain sum derived from taxation of the population. I cannot understand why the medical profession should be subject to a bond which no business man or body of men would accept for a moment. In these times of fluctuation of the value of money it would be perfectly ridiculous if there were no clause in the Act whereby our emoluments were not adjustable to the variation of the cost of living and increased taxation.

I consider that the Act is, under present conditions, absolutely unworkable and also dishonest. The public is asked (rather *made*) to contribute to a national fund administered by the Socialist Government without being told that the present situation of medical arrangements is becoming gradually more desperate, and that to improve it many years of hard spade work will be necessary. In order to live decently doctors are having gradually to increase their private fees—at least, I am doing it gradually, because no one likes very sudden things. Nursing associations and hospitals are crying for more nurses. Plenty of plans for this and that are being made, but from whence comes the all-important trained specialist staff?

We find all our industry crippled by the exportation of vital transport and other necessities which we badly need ourselves for recovery. Taxation has gone so far as to be increasingly imposed upon necessary medicine. This reduces the chemist and dispensing doctor to the position of unpaid tax-collectors and falsifies their books, while at the same time increasing the cost of treatment. While we all realize the benefit of inoculation, maternity subsidies, and special allowances for the sick, it must be remembered that all these public services demand filling up of *forms* and making out of *claims*. The unfortunate person who requires a "certificate" cannot help it, but it must be remembered that we doctors have no option either in the matter, have never been asked whether we will or will not do all this extra work, and do not receive any pay for doing it. Yes, we are sick and tired of forms and certificates, and now we are in danger of being all our lives under the necessity of reporting everything we do, and depending for our living upon every person "choosing" us bringing another "form."

Sir, I hope that the British Medical Association will advise the Government to postpone the foundation of a National Health Service *until it can be worked*, and until every member of the public can realize that he or she will derive increased benefits from the proposed taxation involved. In the meantime, I am sure, we shall all work to improve conditions, and expect help from the Government in so doing.—I am, etc.,

Coldingham, Berwickshire. F. O. TAYLOR.

Parliament Defying the Public?

SIR,—The Minister's suggestion that we are defying Parliament has greatly damaged our cause with the public. Could it not be made clear to them that the boot is really on the other leg? (1) Parliament, realizing that a service manned by reluctant, resentful, and recalcitrant doctors must be inefficient, has decreed that each individual doctor shall choose freely whether he will or will not enter the Service. (2) Four months before the appointed day the Minister was informed that a great majority of the profession, in exercise of this legal right, would choose to stay out. (3) The Government can now ask Parliament to amend the Act so as to make participation (*a*) compulsory or (*b*) acceptable. (4) If they do neither it would seem that they hope to stultify the freedom of choice, conferred by Parliament, by fear of financial consequences.

It seems odd that trade unionists should wish to coerce a profession by means which they would be the first to denounce if applied to an industry. Perhaps they do not realize that, since we cannot use the "strike weapon," any doctor entering the Service under the present Act will be absolutely committed to docile acceptance of whatever conditions of service the present or future Ministers may choose to impose. The choice before Mr. Bevan now is between providing an efficient service for the public and trying to score a personal victory for himself at the public expense.—I am, etc.,

Paignton. ATHELSTANE HILL.

Contracting Out for Patients

SIR,—As one of many "lay" people who have long been fighting the imposition of a centralized health service, I am glad to see that doctors are realizing that, far from having given a "mandate" for it, the public has never been consulted or told the facts. This comes out in a good many letters recently published in your columns, and Dr. W. H. Spoor (Feb. 28, p. 412) renews the question, "Has the patient's right to contract out from the Service been dropped, and, if so, why?" while Mr. Reginald T. Payne (March 13, p. 514) faces the fact that "the interests of the public and the interests of the profession both call for the repeal or abandonment of this Act."

The question of "opting out" for patients has been raised many times in the B.M.A., and, with all due respect to a profession which is doing more than any other to defend the freedom of everyone, it cannot be "dropped" without a betrayal of the patients' interests. It is the essential corollary of the doctor's right to retain the ownership and goodwill of his practice; the one without the other is, in the long run, untenable. Freedom of choice in a matter so closely affecting the private life is a fundamental human right, to deny which is to declare for despotism.

As for the nonsense about doctors "buying and selling patients" when a practice changes hands, it is a good example of the notorious political trick of accusing one's opponents of one's own intentions. Any doctor who accepts "compensation" in connexion with the surrender of patients against their will to the control of the politicians, is "selling" them, and the Government is "buying" them, because they will have had no choice in the matter. When a practice is sold normally, the patients have a perfectly free choice, of course, and can contract out of the new arrangement. Freedom of choice is of the

essence of the whole business, and if the doctors will not concede it to patients, as to themselves, they are isolated and lost.

In conclusion I would add that I write not for myself alone, but for over seven thousand people who have signed a demand for the right to contract out, and a declaration that they will work for the repeal of any legislation which infringes it.—I am, etc.,

Bangor, N. Wales. C. G. DOBBS.

"What do the Doctors Want?"

SIR,—When Hitler was building up for his aggressive war upon the liberties of the world, a part of his technique was to declare himself an essentially reasonable man whose generous intentions were consistently misrepresented by gangs of ruffians, Jews, capitalists, reactionary "old men," and other miscreants. His "patience had been exhausted" in the struggle to instil his reasonableness into an irrational world. "What," he would then demand rhetorically, "do the English—or the Democracies—really want?"

Mr. Bevan has borrowed extensively from this technique, and he and many of his supporters in the House repeatedly ask the same kind of question in the same kind of rhetorical way. What they are trying to do, of course, is to shirk the obvious duty of the plaintiff to prove his case and to throw upon the defendant the onus of proving his innocence. If you want to change the world, it is up to you to show reason why it should be changed; there is no reciprocal obligation upon the world to prove that it does not need changing.

But this significant point is apt to be missed, and Mr. Bevan's rhetoric has had a considerable measure of success both with the Press and the public. At public meetings recently one hears the question asked again and again, What does the B.M.A. want? or What do the doctors want? These questions have a sufficient flavour of reasonableness to be echoed by a large part of the audience. They are posed, not only by the political agitators who haunt such meetings, but by the ordinary thoughtful citizen, whose papers have led him to believe that the doctors are being reactionary and obstinately obstructive to a fine forward movement.

Such questions are difficult to answer from the platform of a public meeting. The Act as it stands is so monstrous that it can easily be torn to pieces; but when that is accomplished the citizen, looking half-consciously to the doctors for a constructive lead, asks not unreasonably what we can put in its stead. I think the real answer is that the doctors, with their immense tradition of public service, know that sweeping revolutionary reforms are usually bad, and that it is best for the world that the art and practice of medicine should be suffered to evolve gradually, stage by stage, under the guidance of those who have given their lives to it and with the minimum of interference from the political State.

Hamstrung as we are by every kind of shortage, there is only one major reform that can usefully be introduced at the present time—the reform repeatedly pressed by the B.M.A. upon successive Governments—that the benefits of National Health Insurance be extended to the dependants of panel patients. That is a crying need. No other revolutionary change should be contemplated until the national finances have been put in order and until the shortages of doctors, nurses, hospital domestics, hospital beds and equipment, houses and health centres, food, and the general amenities of living have been remedied.—I am, etc.,

Orpington, Kent. A. C. E. BREACH.

Decentralize Power

SIR,—In the letter "Criticism from Holland" (March 6, p. 465) we have in my opinion the most important argument against total State control of doctors. We have the history of Germany, with its total State control of medicine, sterilization of political opponents, etc. Certain services (a few only) could be carried out by the Government—e.g., irrigation schemes, electric power schemes—although even these could be carried out by co-operative effort in natural areas.

State control is clumsy and prevents refinement. Freedom is a necessity for a high standard. Countless laws, regulations, rules, forms, certificates, confuse the mind and spirit. The "panel yoke" is a true description of panel service and I agree with the writer of the letter of March 6 (p. 469). Let us have more freedom for all. An alternative health service, an extended insurance service, a comprehensive scheme, etc., may be as total as the present one which we have rejected. We need to get away from totalitarianism by decentralization of power.—I am, etc.,

Liverpool. S. PUGMIRE.

Plato on Free Doctors

SIR,—Plato is generally recognized as one of the greatest thinkers and writers of the world, and it is interesting to recall his comments on the National Health Service although they were written 2,300 years ago. The following passage is taken from *The Laws*: "Did you ever observe that there are two classes of patients in states, slaves and freemen; and the slave-doctors run about and cure the slaves, or wait for them in the dispensaries—practitioners of this sort never talk to their patients individually, or let them talk about their own individual complaints? The slave-doctor prescribes what mere experience suggests, as if he had exact knowledge; and when he has given his orders, like a despot, he rushes off with equal assurance to some other servant who is ill; and so he relieves the master of the house of the care of his invalid slaves. But the other doctor, who is a freeman, attends and practises upon freemen; and he carries his inquiries far back, and goes into the nature of the disorder; he talks with the patient and with his friends, and is at once getting information from the sick man and also instructing him as far as he is able, and he will not prescribe for him until he has first convinced him; at last, when he has brought the patient more and more under persuasive influences and set him on the road to health, he attempts to effect a cure."—I am, etc.,

London, W.8. H. STEPHEN PASMORE.

Direction under N.H.S.

SIR,—I was glad to see Dr. R. L. Osmaston's letter (Feb. 14, p. 312). The misstatement that he refers to (it is in the leading article "Money and Freedom," Jan. 24, p. 153) is present also in "The Minister's Reply Examined" (Jan. 17, p. 109)—"a few cases of 'under-doctoring'"—and unfortunately this commentary was, I believe, circulated to all practitioners whether readers of the *Journal* or not. It would be good to see a public correction and to hear of an apology to Mr. Bevan. This would help maintain the honour of the B.M.A. and would also help to clear the air.—I am, etc.,

Kendal, Westmorland. R. B. WILSON.

Mental Health of Students

SIR,—It is interesting that the only special investigation that Dr. John Pemberton (March 13, p. 490) undertook himself was to "assess the mental health" of the students. Presumably he subjected each student to a psychiatric investigation.

He purported to show that 20% of the students were suffering from "minor anxiety states or depression." Depression is a mood disorder which can occur in normal and many abnormal people and is not in itself a diagnosis. If "minor anxiety state" means anything it means psychoneurosis—mild anxiety state. Yet it is quite clear that Dr. Pemberton did not include his group of minor anxiety states under psychoneurosis, which he considered separately. Similarly he set up a separate category, hysteria, which he did not group under psychoneurosis. He did not indicate what he included under psychoneurosis when he had abstracted anxiety states and hysteria from the group. Two conditions he named—"marked introversion" and "nervous breakdown"—are not accepted psychiatric syndromes.

From all this one is forced to the conclusion that Dr. Pemberton is either using the current psychiatric diagnostic terminology incorrectly or is setting up a new jargon of his own. If the latter is true then he should state clearly and in detail what he means by the terms he uses. If, for instance, "marked introversion" means shy, normal personality and "minor anxiety state" means worried, normal personality, Dr. Pemberton should state so in plain English.

Finally, Sir, it would be interesting to know exactly what investigations Dr. Pemberton did undertake. Did he subject

his students to psychometric tests, personality tests, such as the Rorschach, and questionaries designed to show abnormal traits, or did he just rely on his psychiatric intuition?—I am, etc.,

Sheffield. F. J. KELLEHER.

The Problem of Chilblains

SIR,—I am grateful to Dr. William P. McKeever (March 6, p. 475) for drawing attention to a terminological error in my paper (Feb. 21, p. 336). As a result of experiments on the effect of cold on cellular metabolism it was found that cyanosis did not develop in a hand that was immersed in cold water for as long as six minutes when the venous return was stopped by a tourniquet, but rapidly developed on transferring the hand to hot water. The failure to develop cyanosis in the first place was no doubt due to impaired cellular activity, and the development of cyanosis in the second place was due, most probably, to the accumulation of the waste products of cellular metabolism and the consequent increase of reduced haemoglobin.

When the hand was returned to the cold water, with the tourniquet still in position, the cyanosis slowly disappeared and at the end of six minutes had been replaced by a bright red colour. I suggested that the reason for this must have been a dissociation of the carbon-dioxide–haemoglobin relationship (I used the term carboxyhaemoglobin in error).

I am aware that it is stated that cyanosis only appears when 40% of a normal haemoglobin content exists as reduced haemoglobin (*Price's Textbook of the Practice of Medicine*, 1942 p. 339), but on this basis I found it difficult to explain the disappearance of the cyanosis on exposure to cold. It is hard to imagine why cold should decrease the percentage of reduced haemoglobin present, assuming the venous circulation to be stagnant in the area under consideration. That cyanosis may develop from other causes is evident from the fact that sulphonamide medication may cause it; in this case the cyanosis may be due to either methaemoglobin or sulphaemoglobin (ibid., p. 16).

In my paper I tried to avoid being dogmatic regarding the nature of the products of cellular metabolism which cause the inflammatory reaction found in chilblains. I prefer to leave the elucidation of this point to colleagues who have a greater knowledge of biochemistry than I possess.—I am, etc.,

Ilkley, Yorks. R. JOHN GOURLAY.

The Design of Bed-pans

SIR,—Although the practice of getting patients out of bed soon after operation will to some extent solve the problem of that nerve-shattering act the use of the bed-pan, nevertheless there will still be many patients who are condemned to use it. The writer did at one time design a bedstead in which the bed-pan was placed below the bed and moved into position by a lever rather like the breech-block of a gun. This, however, required a special mattress and draw sheet and was considered by the nursing profession to be too elaborate. It is essential therefore to redesign the bed-pan itself, which should be deeper and more stable. This is an unpleasant subject to discuss in print, but the comfort of our patients must always be our first thought and justifies calling attention to the matter.—I am etc.,

London, W.1. MALCOLM DONALDSON.

Medical Photography

SIR,—In the concluding section of "Where are we Going?" Dr. Ffrangcon Roberts (March 13, p. 485) says that economics is a dismal science. But surely he is being a little too dismal. He is particularly unfortunate in his choice of clinical [*sic*] photography as a scapegoat. The present growth of medical photographic departments (the term "clinical" is too restricted to cover their work) has been brought about mainly by a widening realization of the value of visual methods in education.

We in this country, with a few noted exceptions, had been lagging behind the United States in our use of visual methods of instruction, but during the late war we were compelled to increase the efficiency of our technique for the simple reason that the need for more rapid training was paramount. It was shown time and again that the great majority learn better and faster by using their eyes than by using their ears. There is now a widespread desire among teachers to apply this wealth of experience to medical teaching in general, and I feel sure that Dr. Roberts would be the first to support anything which can lighten the almost intolerable burden of the present curriculum. Agreed that the facilities must be intelligently employed, but it is quite certain that the demands of teachers for the products of the department are wellnigh overwhelming, in spite of expansion.

Dr. Roberts does not give the sources of his quotations, but I can recognize them with the exception of the reference to radiology. The first article was widely felt at the time to be "castles in the air" and likely to frighten people away, and several writers said so. I can safely assure him that it does not represent the opinion of the majority of those connected with departments of medical photography. The statement that the staff will need a long and complete training needs no support. If the new qualification set up by the Institute of British Photographers, the examining board for which includes qualified medical men, is to mean anything, its standards must be high. And I have yet to find evidence that an expert in any branch of photography, or for that matter in anything else, can be made overnight. The quotation concerning cramped quarters is torn from its context, and does not suffice to convey the author's meaning. Would Pasteur, Thomson, and Hopkins have been any the worse for good accommodation? Surely this is merely a passion for what the Services used to call "doing it the hard way"?

Finally, I would suggest that the present increase in medical photographic departments in our teaching hospitals does not indicate an urge for expansion; the teaching staff are not all suffering from delusions of grandeur. It indicates only a very reasonable desire for high quality in recorded and instructional material, and a determination that those who provide it shall work under reasonable conditions. There is also every chance that it will lead incidentally to a much-needed improvement in the standard of pictorial and line work submitted to the journals for publication.—I am, etc.,

Manchester, 13. ROBERT G. W. OLLERENSHAW.

Bone Conduction in Otosclerosis

SIR,—What is most urgently needed to-day in regard to the over-publicized fenestration operation for otosclerosis is a careful, sober, and dispassionate estimation of end-results. After Simson Hall had performed 200 operations he reviewed 118 of them only as suitable for analysis (*Journal*, 1946, **2**, 647); as long ago as January, 1945, Lempert, of New York, published a series of 1,000 fenestration cases, and Shambaugh, of Chicago, recorded 930 cases in 1946. And here is Mr. Magauran reporting a case in the *Journal* (March 20, p. 569) six weeks after he had left hospital and only 12 weeks after his first (of two) fenestration operations, and apparently the patient's hearing was never examined with an audiometer before or after operation.

Otologists in general agree that two years (some optimists one year) is the period after which the hearing result from fenestration may be regarded as permanent. Suggit found in 1938 that there was an average fluctuation of 10 decibels in a group of stationary cases of otosclerosis when examined methodically with the audiometer. Psychological deafness is well recognized nowadays, though not many otologists have found as many cases as Canfield (1947) did in his war veteran patients, and there is undoubtedly a marked psychological element in many otosclerotics. As for bone conduction in otosclerosis, most otologists would, I think, agree with Tumarkin (1947) that the myth of increased bone conduction has long been exploded.—I am, etc.,

London, W.1. R. SCOTT STEVENSON.

Brodie's Abscess

SIR,—In the interests of accuracy it seems desirable to add to the article by Messrs. Stanley Scott and Frank S. Preston (Feb. 14, p. 296) and to Mr. St. J. D. Buxton's letter on this subject (March 6, p. 472). The latter rightly points out that although Brodie saw the first of his cases for the first time in 1824 he did not actually publish anything on the subject in

that year. However, he continues, "I find no record of him reporting this case prior to 1832." In fact, Brodie published this case and one other in a paper, "On Trephining the Tibia," in 1828 (*Lond. med. Gaz.*, **2**, 70). These were described more fully, with a third case, in his paper of 1832; all three were repeated, with a further three, in the famous lecture of Nov. 19, 1845, together with a few miscellaneous cases not of this type of abscess.

As for the question of what is and what is not a Brodie's abscess, it seems reasonable to define it as a "chronic circumscribed pyogenic intramedullary abscess of bone." In fact Brodie's cases were all of the tibia, but it seems not unreasonable to use the term for a similar lesion occurring infrequently in other bones. Incidentally, although, of course, he gave no suggestion as to the aetiology, it is almost certain from his descriptions that these were pyogenic abscesses and not tuberculous disease of the bone as is sometimes stated.

It is a pity that Messrs. Scott and Preston give no references whatever to the authorities they quote, not even Brodie himself, whose papers they do not appear to have consulted. (The second and third of these are reprinted in full in *Medical Classics*, 1937–8, **2**, 900 and 907). As Mr. Buxton states, it is important to know exactly what an eponymous authority actually said, and this not only to avoid the confusion to which uncertainty leads but also for the intrinsic merit of classical writings, in this case considerable.

I would add that this is not to detract from the clinical part of their paper, which I have no wish to criticize.—I am, etc.,

The London Hospital, E.1. A. P. WATERSON.

Relief of Pain in Midwifery

SIR,—Dr. Anne M. Toms (March 6, p. 475) maintains that stretching of the perineum in the second stage of labour cannot be painless, her argument being that stretching of the skin of any other part of the body is painful and that the perineum is no less sensitive. She does not take into account the softening of the perineum that occurs during pregnancy and labour.

Stretching of the perineum in the non-pregnant woman is certainly very painful. The perineum is painful and tender for days following the stretching necessary, for example, before a dilatation and curettage is performed. I have had a dilatation and curettage.

I have also, however, had a normal, relaxed labour, after antenatal preparation as advocated by Dr. Grantly Dick Read. I had no drugs, but during the second stage I had absolutely no pain; and at no time then or in the puerperium was the perineum at all tender or painful.—I am, etc.,

Prestbury, Cheshire. FLORENCE H. AUCKLAND.

National Hearing-aid

SIR,—The Government hearing-aid scheme seems to have been engendered in an emotional fervour on behalf of the deaf and to have swept on to its present state without adequate thought as to the objectives and the most efficacious way of achieving them. It has got entirely out of control and must fail to achieve its objective unless correctives are applied.

It presupposes that there are 400,000 deaf people in this country waiting anxiously for hearing-aids. Three-quarters of them have never seen a hearing-aid and would shrink from using one. Most of those who have inquired will refuse to use the Government aid when they see how bulky and complicated it is. The education of a deaf person to the point where he will use a valve hearing-aid takes a long time, and when knowledgeable he will demand and need only the best, with the right kind of personal attention.

The aid itself will give good results, though not as good as laboratory tests, due to the difficulties of maintaining high standards in mass production. It suffers from the handicap of its conception—a standard aid for all deaf people. There is no standard aid that is satisfactory for all. Success depends on a number of factors of very real importance to individual patients. The Report admits the unreliability of the crystal receiver which will be used with most patients. The alternative disk earphone with headband is ugly and inconvenient. No provision whatsoever is made for bone conduction. This is a striking omission.

The proposed method of supply through hospitals is unsuitable. A deaf person should be freed from the feeling that he is a hospital case. No hospital scheme can give the efficient service and thoughtful attention required to ensure success. The United States Veterans Administration, with long experience of hearing-aid supply, regards the after-fitting attention as more important than the instrument itself.

The New Zealand Government has given our own a lead in the provision they should make. As an alternative to a standard aid a grant of £15 is made towards the purchase of a commercial instrument. Our own Government should do no less. In order to avoid what they call "commercial exploitation" they have evolved a scheme which is costly and valueless. Surely the objective is that the deaf shall be helped to the utmost; as it is, they will be fobbed off with a utility instrument and a totally inadequate service. They will have freedom from payment, but they will lose freedom of choice and freedom of criticism, and they will not get good hearing.—I am, etc.,

London, W.1. A. EDWIN STEVENS, Governing Director, Amplivox Ltd.

SIR,—According to the Medical Research Acoustic Committee's Report No. 261, "Hearing Aids and Audiometers," prototypes of the national hearing-aid now being manufactured were tested by 27 deafened persons, and Lord Walkden tells us in the House of Lords that these tests were each of three hours' duration. The following facts should be taken into account when considering the results of the Medical Research Council's tests.

(1) Post-war models of British commercial hearing-aids were not included in the Medical Research Council Acoustic Committee tests.

(2) Reputable British hearing-aid manufacturers are prepared to allow any of the deafened public a full week's unrestricted trial of their products under ordinary conditions of use before purchase need be considered, and during the trial the instrument can be compared with any other British or American aid available. The results of these tests will be different from those of three hours.

(3) Production models of British commercial post-war hearing-aids will without doubt compare favourably in efficiency, compactness, and appearance with production models of the national aid when available.

(4) The deafened public are not likely to remain satisfied for long with the Government free aid which has been made obsolete by British commercial hearing-aid manufacturers' latest models.

—I am, etc.,

London, W.C.2. H. C. GEE, Secretary, the H.A.M.A. and Society of Aural Technicians.

Calories and Appetite

SIR,—The many controversial statements which have recently been made both in the medical press and Parliament have, to my surprise, considered the nutritional value of food solely in terms of calories (and occasionally vitamins). No mention is ever made of the quality of the food eaten.

Statistics completely ignore this aspect and naturally pay no attention whatever to whether the food is appetizing or not—it usually is not! Consequently much of the food statistically consumed is never eaten at all. It is ludicrous to make no distinction between good fresh food, well cooked, and stale unappetizing meals badly cooked. They may weigh the same (and calories are based entirely on weight), but they are not of the same use to us.

There is plenty of food in Britain, but mostly of inferior quality and far from tempting. That we survive is a tribute to our digestion.—I am, etc.,

London, W.2. A. M. GREEN.

Westmoreland Lodge

SIR,—Your readers will remember that in the *Journal* of Jan. 18, 1947 (p. 101), you kindly gave an account of a new venture of the Royal Medical Benevolent Fund—namely, the provision of a house for a number of our old ladies. I shall be grateful if you will now allow me to report the opening of Westmoreland Lodge.

In spite of the usual difficulties with licences, supply of builders' materials, and labour this charming house standing in its own grounds near Wimbledon Common has been completely renovated and adapted to the needs of twelve of our beneficiaries. Each lady has her own bed-sitting room equipped

with either gas or electric fires and a small set-up for minor cooking, while on each floor there is generous provision of all necessary facilities. In addition there is a lovely room on the ground floor in part dining-room and in part sitting-room, with a sun-lounge overlooking the garden.

Fifteen years ago the late Dr. A. Holdsworth Davies bequeathed to the Fund his house at Bournemouth and the whole of the estate. He expressed the wish that his house should be used as a home for elderly people, but wisely left the Fund free to use its own judgment and free of restraint. The late Sir d'Arcy Power and I visited the house and realized it was quite unsuitable for this purpose. Accordingly the house was sold and the Holdsworth Davies estate has been administered as a separate entity in our accounts and the income used as nearly as possible to help those whom Dr. Davies had had specially in mind in the hope that one day his wish might be fulfilled.

To-day something perhaps even better than he visualized is a vital concern, and I have delayed writing until a few weeks have elapsed and we knew that our ladies were happily settled in. Two other friends have helped materially in furnishing and equipping Westmoreland Lodge. Under the will of Miss L. H. Wiltshire the Fund received a most valuable gift of furniture in addition to a substantial sum of money. Mrs. Parry has also helped us with a most generous donation in memory of her late husband. These gifts have enabled us to furnish the communal dining- and sitting-room and to provide other attractions which would have been difficult without them.

I think I may claim that this venture, the merits of which are so self-evident, required considerable courage on the part of the committee of management in embarking upon so ambitious a project in such difficult days. We are amply repaid by the sense of security and comfort and happiness of our residents. Their feelings are summed up in the words of one of them thus: "I do like opening the front door of this house because I know I am coming in to such a happy atmosphere." We are also repaid by the approval and encouragement given to us by so many members of the profession.

This letter is a progress report, but the success of Westmoreland Lodge leads us on to other thoughts. Might we not think of a similar house for men, and should we also provide for the sick and bedridden? To a certain extent the answers to these questions depend upon the reaction of the profession to our work. This is not a begging letter, but in the past twenty years the Fund has made enormous strides and Westmoreland Lodge is a new and important venture. The committee would like to know that the profession whole-heartedly approves the work we are doing as trustees of their benevolence.—I am, etc.,

R. M. HANDFIELD-JONES,
Chairman,
Committee of Management,
Royal Medical Benevolent Fund.

1, Balliol House,
Manor Fields,
Putney, London, S.W.15.

POINTS FROM LETTERS

Resign on April 1

Dr. G. H. URQUHART (St. Annes-on-the-Sea, Lancs.) writes: The medical profession's idea of a sound national health service is that the health of the nation should be the main consideration. This could quite readily be accomplished through "grants in aid" by the Treasury to all hospitals and universities. The medical profession in other respects can best manage its own complex affairs without political interference. In order to achieve our aims we shall have to fight, and in order to fight, funds are necessary. We have some, but not enough; so in order to conserve and reinforce these the general practitioners should resign *en masse* from the N.H.I. on April 1 instead of being pushed out on July 5. Let them then transact treatment for patients on a cash basis only (no accounts) that will keep the practitioners in funds meanwhile. On and after April 1 let there be no issue of any kind of certificates other than birth, infectious diseases, and death. The B.M.A. fighting fund could thus be utilized wholly for the purpose of supporting those who have not the above advantages at their disposal but yet must live. . . .

Prescribe Quickly

Dr. W. H. TATTERSALL (Reading) writes: The 1946 National Health Act—not yet eighteen months old—seems to be threatened with what might be called "infantile paralysis." At any rate 75% of our profession agree about it—a degree of unanimity rare among doctors. It hardly matters now whether this condition is the result of a birth injury following a long labour or whether the midwife should have summoned medical aid to the confinement. No, the problem now is to prescribe, and *prescribe quickly*, such treatment as is necessary to enable this Act to recover from its palsies and find a respected place on the statute book. . . .

Design of N.H.S. Cards

Dr. G. B. BOWATER (Birmingham) writes: If under the N.H.S. patients are still to possess medical cards, I would suggest that they be modified to include a space in which the surgery hours and half-day of the doctor could be entered.

Doctors' Wives

Mrs. W. GORDON (Poole) writes: In view of the recent comments in the *Journal* regarding the unpaid work of doctors' wives after July 5, would any useful purpose be served if we (the wives) called meetings either privately or through the auspices of the local Branches of the B.M.A. throughout the country? We could then air our views, grievances, and suggestions, and present our case to the Minister, and so ensure that he realizes that if we down tools (the telephone) he must either provide our husbands with competent telephonists or secretaries or pay us for doing the job.

Petrol Rationing

Dr. H. S. GRIFFITH (Wolverhampton) writes: For thirty years I have been giving certificates which have always been accepted without hesitation, but when it is a matter of my own petrol requirements, what a fall is there, my countrymen! No longer am I the omniscient sage whose word can be trusted, as it is regarding your wife's visceroptosis, your invalid aunt's fuel requirements, or as to whether your grandpa is a genuine tobacco addict. No, I think my application must be included in the "obvious twisters" batch and given to a clerk with the instruction to "dock 'em 50%." Anyway, that is the result when I apply (and reapply) for three-quarters of the amount allowed to my predecessor in this practice.

Fugue after Mepacrine Administration

A physician writes from Pakistan: The account by Dr. D. R. Macdonald (Dec. 13, 1947, p. 959) of two cases of fugue after mepacrine prompts me to cite my personal experience with the drug. Towards the end of May last I had a 4-day course of mepacrine, 4 tablets a day. This finished on May 30. On the afternoon of the following day, as I was writing a couple of letters, I suddenly felt that I could not easily write a full sentence; I had to think out each word separately. A few minutes later restlessness with mental and physical overactivity followed. For instance a chair slightly out of line with others, a book placed not in a straight line on the table, and such other very minor things began to irritate me. I perceived that something was going to happen. I called in my son, a medical student, to warn him of the possibility of mepacrine psychosis. In the course of a few minutes the condition became distinctly worse. I was agitated and apprehensive. I lost reserve. The speech was at first hurried, but soon I could not find suitable words. However, I continued to talk in a non-stop manner. Old memories came up to the forefront, and ideas ran across the mind with great speed. However, none of the higher faculties was affected. The acuteness lasted about three hours. By then I felt exhausted and literally sank upon my feet. Shortly thereafter, suddenly, I felt that the worst was over. I took rather heavy doses of sedatives and hypnotics. Next morning I woke up exhausted, but otherwise practically normal. For a week thereafter I was mentally below my own normal, though I carried on my usual medical practice. For instance, while driving my car on a familiar road with turns I would not realize which turn would be the next until I actually reached it, when I would take the correct turning.

My age is about 56. Otherwise I have a very good personal and family history. I had never taken mepacrine before, though I had prescribed it thousands of times with no mishap, except once when a short psychosis occurred in a rather unstable lady.

Sweet Urine Containers

Dr. W. E. MCCULLOCH (Kingston, Jamaica) writes: This case illustrates the necessity of being careful about the bottles that are used to send samples of urine to the laboratory. The early morning urine of a patient of mine was ++++ for glucose on two successive days, and this was totally unexpected. My laboratory technician then noticed that the stoppers of the bottles were labelled "honey." A third morning sample sent in a soda-water bottle was negative and the urine has continued to be free from sugar.

The husband assured me that all bottles had been boiled before use, and he is a careful man. A third honey bottle was obtained. It had also been boiled and was dry. Washings in distilled water were negative for glucose. The cardboard lining to the stopper was strongly positive for glucose. The astonishing thing is that these honey bottles can be dated. They were received from England as samples over ten years ago, and were washed and put away as used. The honey absorbed in the cardboard washers has been there for over ten years; no crystallized sugar was visible, yet the glucose reaction was very strong.

Obituary

E. WAYMOUTH REID, Sc.D., M.B., F.R.S.

Prof. E. Waymouth Reid, who occupied the chair of physiology at University College, Dundee, for forty-six years, died on March 10 at his home in Edinburgh, where he had been living since his retirement. He was 85, and although he had been confined to bed for several years he had been in his usual state of mental alertness until three days before his death.

Edward Waymouth Reid was born in Canterbury, where his father was in practice as a surgeon. He went from Sutton Valence Grammar School to Cambridge with an open classical scholarship in 1879. He took a first-class in human anatomy and physiology in the natural sciences tripos in 1883, and after a period at St. Bartholomew's Hospital he graduated M.B. He was assistant electrician at St. Bartholomew's Hospital in 1885, and subsequently demonstrator of physiology in St. Mary's Hospital Medical School. He became assistant lecturer on physiology at St. Mary's two years later and was appointed professor of physiology at University College, Dundee, in 1889. He was then only 27, and he taught generation after generation of medical students at Dundee until his retirement in 1935. At the relatively early age of 36 Waymouth Reid was elected a Fellow of the Royal Society in recognition of the contributions he had already made to physiology, and six years later he was made an honorary Sc.D. by the University of Cambridge.

Prof. Reid was one of the first workers in Great Britain to suffer from *x*-ray burns. Only a few months after Roentgen's discovery he constructed an *x*-ray apparatus and in the course of his experiments received a superficial skin injury which he thought might be due to exposure to the rays. To settle this point he deliberately exposed himself for a longer period and received a burn of which he carried the scar for the rest of his life. During his tenure of the chair some 60 papers were published from the Physiology Laboratory of University College, Dundee. His work on serum absorption was important, and so was his preparation of crystalline haemoglobin. He was the first Dean of the Faculty of Medicine in the University of St. Andrews and did much valuable work in connexion with the early organization of a laboratory service for the use of general practitioners in the Counties of Fife, Forfar, and Perth, a service which was later taken over by the University Court. The work he had done for University College and St. Andrews University was recognized soon after his retirement by the conferment of the degree of LL.D.

Prof. Reid had been a member of the British Medical Association for just under sixty years. He was vice-president of the Section of Physiology at the Annual Meeting in 1898, and he was president of the Dundee Branch in 1903–4. He was for a time one of the editors of the *Journal of Physiology*, and he had acted as examiner in physiology for the Royal College of Surgeons of England, the University of Cambridge, and the Royal College of Veterinary Surgeons. Waymouth Reid was popular with his students and was an enlightened and enlightening teacher. His recreations included photography and horticulture, and he had a keen sense of humour. His wife died many years ago, and he is survived by a son and three daughters.

H. W. GARDNER, M.B.E., M.D., F.R.C.P.

Dr. Henry Willoughby Gardner died peacefully at his home in Church Stretton on Feb. 27, at the age of 86. He was educated at Charterhouse and St. Bartholomew's Hospital, qualified in 1885, graduated M.B. in the following year, and proceeded M.D. in 1888. He was elected F.R.C.P. in 1917. He was a house-physician and resident obstetrical assistant at St. Bartholomew's Hospital before taking up an appointment as a Government medical officer in New South Wales.

Returning to England, he joined Dr. Withers in general practice in Shrewsbury. After some years, however, he decided to do consulting work only and found his real vocation as honorary physician to the Royal Shropshire Infirmary, the Shropshire Orthopaedic Hospital, and the County Sanatorium. Interested in all branches of medicine, he was always receptive to new ideas and recent advances. Dr. Gardner had been a member of the British Medical Association since 1892, and was a president of the Shropshire and Mid-Wales Branch in 1913 and 1919, and a member of the Branch Council in 1901, and from 1906 to 1917. When the Association met at Birmingham in 1911 he was vice-president of the Section of Therapeutics, and he had previously represented his constituency at the Annual Representative Meetings at Leicester in 1905 and at London in 1906. His other interests were many, and included gardening, golf, and fly-fishing, at which latter he was quite an adept. He had the misfortune to lose his wife and only son some years ago. As evidence of his great and abiding interest in the Royal Shropshire Infirmary he has left his house at Church Stretton to that institution to be used as a rest home for the nurses. He was much interested in the present phase of medical politics, and, it might be added, was considerably perturbed at the outlook. In recognition of his work during the 1914–18 war he was made a member of the Order of the British Empire, but he will remain long in our minds as a man of charming personality who did his life's work well and whose main characteristics were honesty of purpose and a well-balanced mind.—J. A. I.

R. F. YOUNG, *M.C.*, M.B., B.Chir., F.R.F.P.S.

Mr. Roy Frew Young, one of the best-known surgeons in Glasgow, died on March 12. Mr. Young was educated at Glasgow Academy and Sedbergh School, and at the Universities of Cambridge and Glasgow. After graduating B.A. at Cambridge and M.B., Ch.B. at Glasgow in 1909 he was appointed extra dispensary surgeon at Glasgow Western Infirmary, becoming in turn dispensary surgeon, assistant surgeon, and visiting surgeon. On his retirement in 1944 he was appointed honorary consulting surgeon. He was also a lecturer in clinical surgery at the University of Glasgow; consulting surgeon to the Vale of Leven Hospital; and he was associated with the Bellahouston Hospital and with the Royal Alexandra Infirmary at Paisley. In the 1914–18 war he served with the R.A.M.C. as a surgical specialist with No. 14 General Hospital in France. He was awarded the M.C. and twice mentioned in dispatches. As well as being the convener of the medical committee of the Glasgow Western Infirmary, he sat on the board of managers as representative of the Royal Faculty of Physicians and Surgeons of Glasgow, of which he became president in 1940. Last year the University of Glasgow conferred on him the honorary degree of LL.D., and it was barely a month ago that he retired from the board of managers of the Infirmary on the grounds of ill-health.

Roy Young was a good athlete in his younger days. He was president of the rugby football club at Glasgow University, and subsequently did much to encourage student athletics. He was a good teacher and a good surgeon, always telling his students that the operation was only a part, and perhaps not the most important part, of the surgeon's work. He insisted on the most careful pre-operative investigation and always devoted a great deal of attention to after-care. His counsel was widely sought, and he was ever ready to give advice on personal problems or on more general matters. A man of strong convictions, any cause he espoused was advocated with singleness of purpose and enthusiasm tempered by sound judgment. His personal charm and his lively sense of humour were potent factors in gaining acceptance for his views.

C. C. HEYWOOD, M.A., M.B., M.R.C.P.

Dr. Charles Christopher Heywood, who died at his home in Alderley Edge on March 10 at the age of 82, had been associated for 43 years with the Manchester Children's Hospital, Pendlebury, and he was also for many years consultant physician to the Salford Royal Hospital.

Charles Christopher Heywood, a son of the Rev. H. R. Heywood, vicar of Swinton, was educated at Harrow and Trinity College, Cambridge. He graduated M.B., B.Ch. in 1890 and took the conjoint diploma in the same year, and the M.R.C.P. in 1904. He was house-surgeon at the Salford Royal Hospital and later clinical assistant at St. Thomas's Hospital. Dr. Heywood then returned to Manchester as medical officer to the Manchester Children's Hospital, and at the same time acted as lecturer in physiology for the Salford Technical Institute. Later he became the senior physician at the Manchester Children's Hospital, and, apart from his work there and on the staff of the Salford Royal Hospital, he was

consulting physician to the Manchester Warehousemen and Clerks School, Cheadle Hulme, and examiner in physiology and hygiene to the Union of Lancashire and Cheshire Institutes. He was also consulting physician to Chetham's Hospital and to the Alderley Edge Cottage Hospital. He was for nine years an officer of the 2nd V.B. Manchester Regiment and the 6th Batt. Manchester Regiment.

Dr. Heywood's skill as a paediatrician, his sense of humour, and his kindness soon made him well known and well liked. He contributed a number of papers to the medical journals on the diagnosis of early rickets; on serous pleural effusions in children; on Calmette's tuberculin reaction; and on similar subjects.

Dr. WADHAM BRUCE WINCKWORTH died on Feb. 20 at the age of 79. At the time of his retirement ten years ago Dr. Winckworth was the senior practitioner in Taunton, where he had practised for more than forty years. He was born in London, and educated at Westminster School and at the Westminster Hospital. He qualified M.R.C.S., L.R.C.P. in 1893, and was a house-physician at the Westminster Hospital before settling in Taunton in 1895. He began practice with the late Dr. Samuel Farrant, and after some years set up his own practice, in which he remained until he was joined by his son, Dr. R. F. Winckworth, in 1935. His son is now in orthopaedic practice, and Dr. Fleming and Dr. Knowles have for many years been continuing the practice which the elder Dr. Winckworth founded. From 1923–33 Dr. Winckworth was on the honorary staff of the Taunton and Somerset Hospital, and after his retirement he continued to serve as chairman of its nursing committee. He was chairman of the West Somerset Division of the British Medical Association in 1932–3, and he was also an active member of the St. John Ambulance Association, for many years coaching the Taunton G.W.R. teams. He leaves a widow, two sons, and three daughters.

Dr. JOSEPH JOHN CLARKE, a justice of the peace for Essex and formerly medical officer of health for Walthamstow, died at his home in Hove on Feb. 24 at the age of 86. Dr. Clarke was previously in private practice in Walthamstow in partnership with his brother. He was educated at Queen's College, Cork, and the Middlesex Hospital, qualifying in 1894 and obtaining the diploma in public health in 1898. He was appointed part-time medical officer of health to the Walthamstow urban district council in 1898, and whole-time medical officer of health in 1906, retiring on pension in 1930. During this period Dr. Clarke built up a public health service in Walthamstow which compared more than favourably with that in any comparable area. In particular he was largely responsible for the erection of a fine infectious disease hospital, and this included the first cubicle block ever built in this country. The idea followed a visit to Paris, and the plan of this cubicle block was for many years a feature in the public health textbooks. This block is still actively functioning and has been in every way satisfactory for more than forty years. Dr. Clarke also sponsored an up-to-date welfare centre in Markhouse Road and the provision of specialist facilities in connexion with school health services. He will be remembered by his colleagues and friends for his charming Irish personality and his readiness to help in all cases of misfortune. Recently his period of retirement had unfortunately been marred by ill-health.—A. T. W. P.

Dr. PERCY LUND POLLARD died on Feb. 25 at the age of 66 after a short illness. Dr. Pollard was educated at Manchester, and graduated M.B., Ch.B. in 1906. He went to the Royal Halifax Infirmary as a house-surgeon and remained there until 1910, when he went into general practice. It was during the years as a house-surgeon that he became interested in surgery, and the opportunity to practise came with the 1914–18 war, when he joined the R.A.M.C. and did excellent work on the surgical side, for which he was mentioned in dispatches. In 1919 he was appointed assistant honorary surgeon at the Royal Halifax Infirmary. His chief interests lay in general surgery and in gynaecology. Though running a busy general practice he found time to spend hours a day at the Infirmary. He was twice chairman of the Halifax Division of the British Medical Association, and was president of the Yorkshire Branch in 1928–9. He was senior surgeon at the Infirmary by 1939, and he became medical superintendent in charge of air-raid precautions and of E.M.S. cases, and did much valuable work. In 1943 he had to undergo a major operation, and but for his indomitable spirit would never have returned to duty. Early in 1947 he retired from the active surgical staff and became a consultant surgeon. On the occasion of his retirement the Board of Governors and the medical staff presented him with a silver salver to mark many years of good, faithful service. Unfortunately P.L.P., as he was known to his friends, was not to enjoy a long retirement, for after a short illness he died. His many friends and colleagues extend their sympathies to his widow and two sons.

Medical Notes in Parliament

National Health Service

On March 16 Mr. BEVAN gave an assurance that names on existing panel lists would be automatically transferred to the list of their present doctor if he entered the National Health Service unless either the doctor or the patient objected.

On the same day Mr. BEVAN assured Mr. PARKIN that doctors joining the National Health Service in July who had not reached their 56th birthday would be eligible to complete ten years' service and qualify for superannuation and retirement allowance.

Mr. BEVAN stated on March 18 that provision was made in the estimates for the current financial year, 1947–8, for 350 extra staff to deal with additional work resulting from the National Health Service Act. For the next financial year, 1948–9, it had been found necessary to provide for a further 320. Nearly half of these additional 670 were required as a result of the provisions in the Act for superannuation benefits for those taking part in the different branches of the new Health Service. Of the remainder, most are required for other financial work in connexion with the Act. He added that the total staff to be employed at the headquarters of the fourteen Regional Hospital Boards at the date when the Act came into force would be about 600. Of these a large proportion would not be extra staff but would have been transferred to the service of the Boards from local authorities and other bodies.

Sir WAVELL WAKEFIELD asked on March 18 if Mr. Bevan proposed under the National Health Scheme that medical practitioners should be entitled to a five-day week, with extra pay for overtime, Sunday work, and night work, together with danger money when attending cases of infectious disease.

Mr. BEVAN replied that the terms of service for general practitioners under the National Health Service were set out in the National Health Service (General Medical and Pharmaceutical Services) Regulations, 1948, which were now before Parliament.

Nutritional Surveys in Germany

Mr. MAYHEW, for the Foreign Office, stated on March 15 that late last autumn members of the Combined Nutritional Committee reported that the nutrition of the urban population in the Western Zones of Germany had improved during the previous six months. Famine oedema was very rare, and adult body weights had not declined. These findings had been confirmed by a survey carried out by representatives of the Medical Research Council in November.

Food Facts

Dr. SUMMERSKILL circulated on March 15 the following statistics of the daily intake of foods in the United Kingdom per head during the first half of 1947:

Protein—	
animal	45.2 g.
vegetable	43.0 g.
total	88.2 g.
Fat (from all sources)	108.3 g.
Visible fat (butter, margarine, lard, etc., fat content)	42.1 g.
Total energy value	2,870 calories

Purchase Tax

Sir STAFFORD CRIPPS estimated on March 10 that receipts of purchase tax for medicines, drugs, disinfectants, toothbrushes, and toothpaste were in the region of £15,000,000 a year. He promised to reconsider, before the National Health Service Act was brought into force, the taxation of such goods.

Theft of Dangerous Drugs.—The records of the Metropolitan Police show that 4 losses and 60 thefts of dangerous drugs from doctors were reported in 1947.

Streptomycin.—Production of streptomycin in the United Kingdom on a small scale will start shortly, but imports are still necessary. Stocks on Sept. 1, 1947, were 25 kg. and on March 1, 36 kg.

No. 10

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 6.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are or: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1948 (a)	1948 (b)	1948 (c)	1948 (d)	1948 (e)	1947 (Corresponding Week) (a)	1947 (b)	1947 (c)	1947 (d)	1947 (e)
Cerebrospinal fever	42	4	37	—	6	86	7	33	5	8
Deaths		2	2				2	3		
Diphtheria	200	21	60	8	2	182	20	34	18	12
Deaths	5	1	—	—	—	1	1	—	—	—
Dysentery	184	22	37	—	—	69	11	38	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	—	—	1	—	—	—	—	1	—	—
Deaths		—					—			
Erysipelas			55	13	5			46	13	4
Deaths		1					—			
Infective enteritis or diarrhoea under 2 years				20					29	
Deaths	49	3	7	1	—	89	9	21	16	2
Measles*	8,788	1303	775	78	34	12,137	574	246	21	168
Deaths†			4	—	—	37	6	1	2	2
Ophthalmia neonatorum	67	6	6	1	1	81	1	15	1	1
Deaths										
Paratyphoid fever	2	1	6 (B)	—	1 (B)	4	—	1 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	794	45	10	8	3	958	81	18	28	8
Deaths (from influenza)‡	27	2	1	1	—	92	17	4	10	2
Pneumonia, primary			277	22				303	55	
Deaths	316	60		15	9		102			17
Polio-encephalitis, acute	1	—				—	—			
Deaths							1			
Poliomyelitis, acute	22	2	2	2	—	10	1	2	2	—
Deaths§	6	—					—			
Puerperal fever		2	12		—		1	10		—
Deaths										
Puerperal pyrexia‖	94	6	13	—	—	128	5	11	—	2
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	2,069	136	347	48	60	1,217	79	199	21	37
Deaths†			—	—	—	1	—	1	—	—
Smallpox	—	—	—	—	—	7	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	5	2	—	—	—	4	—	1	1	—
Deaths	1	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	3,067	217	44	63	8	2,461	262	369	109	29
Deaths	10	1	—	1	—	15	1	9	3	2
Deaths (0–1 year)	430	49	45	27	8	636	79	78	64	17
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	5,914	956	668	221	139	7,755	1258	931		195
Annual death rate (per 1,000 persons living)			13·5	13·8				19·4	26·2	
Live births	8,369	1317	944	404	266	9,650	1452	1231		274
Annual rate per 1,000 persons living			19·1	25·3				24·8	31·1	
Stillbirths	231	37	28			290	33	49		
Rate per 1,000 total births (including stillborn)			29					38		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

Discussion of Table

In *England and Wales* infectious diseases were more prevalent during the week, and increases in incidence were recorded for measles 1,476, whooping-cough 436, scarlet fever 359, acute pneumonia 62, dysentery 39, and cerebrospinal fever 11.

The largest increases in the notifications of measles were: London 371, Middlesex 259, Lincolnshire 181, Lancashire 161, Warwickshire 141, Surrey 130, and Northamptonshire 128. An increase in the incidence of whooping-cough occurred throughout the country; the largest rises were Essex 63 and London 59.

Notifications of scarlet fever increased in every region except the south-western and eastern counties; the chief increases were: London 55, Glamorganshire 44, Middlesex 22, and Warwickshire 32. A small rise in the incidence of acute pneumonia was recorded in most areas, but there were no large variations in the local trends. The chief features of the returns for diphtheria were increases in Lancashire 10 and London 8.

The largest centres of dysentery were Yorkshire West Riding 55 (Sheffield C.B. 25), Lancashire 47 (Preston R.D. 11), and London 22. One-quarter of all the cases of cerebrospinal fever were notified in two cities—Liverpool C.B. 7 and Birmingham C.B. 5. The only counties with more than one notification of acute poliomyelitis were Warwickshire 4 (all from Birmingham C.B.), Middlesex 4, Lancashire 3, London 2, and Surrey 2.

In *Scotland* there were increases in the incidence of measles 43, diphtheria 22, and cerebrospinal fever 22, and decreases in the notifications of dysentery 28 and scarlet fever 10. In Glasgow the notifications of cerebrospinal fever rose from 10 to 27. The rise in the incidence of diphtheria occurred in the western area. Only 6 cases of dysentery were notified in Edinburgh compared with 23 in the preceding week.

In *Eire* the chief features of the returns were increases in scarlet fever 22 and whooping-cough 26 and a decrease of 58 in the notifications of measles. A small increase in the returns for scarlet fever and for whooping-cough occurred in most areas.

In *Northern Ireland* there was an increase of 14 in the notifications of scarlet fever. This disease is at the highest level since the beginning of November.

Week Ending March 13

The notifications of infectious diseases for England and Wales during the week included: scarlet fever 2,027, whooping-cough 3,418, diphtheria 173, measles 8,449, acute pneumonia 933, cerebrospinal fever 55, acute poliomyelitis 20, dysentery 213, paratyphoid 3, and typhoid 4.

Medical News

London Consultants Liaison Committee

The first formal meeting of the London Consultants Liaison Committee was held on March 16 at B.M.A. House. Representatives were present from the London teaching hospitals, the Association of Non-teaching Hospitals, the Association of Municipal Specialists, the B.M.A. Consultants and Specialists Standing Committee, and the Marylebone Division of the B.M.A. It was proposed, seconded, and unanimously agreed that such a committee should be formed, and that the terms of reference laid down by the B.M.A. Council's letter of Feb. 20 be adopted.

To establish and maintain liaison between the consultants and specialists staffs of the London hospitals and the B.M.A. in order to unify and consolidate consultant and specialist opinion on the National Health Service Act, 1946, within the policy of the profession as a whole.

The following officers were elected: Chairman, Lord Horder; Vice-Chairman, Sir Reginald Watson-Jones; Hon. Secretary, Mr. Eric Steeler.

The following resolution was proposed and passed unanimously:

That the Committee considers it desirable to investigate the present Act with respect to the privileges and restrictions of the consultant and specialist section of the profession, and that the best possible legal opinion be obtained to that end.

U.C.H. Scholarships

University College Hospital Medical School is offering two Goldsmid Entrance Scholarships entitling the holder to the final course of medical study, one Goldsmid Entrance Exhibition entitling the holder to a reduction in fees of £126 for the final course of medical study, and the Filliter Entrance Scholarship in Pathology entitling the holder to a reduction in fees of £123 for the final course of medical study. Further scholarships, medals, and prizes to the value of £1,000 are awarded annually. Full particulars may be obtained from the Vice-Dean.

Cost of N.H.S.

The estimated cost in the first nine months of the National Health Service is £149,675,000, according to the Civil Estimates published on March 20. The hospital, specialist, and ancillary services in England, Scotland, and Wales will cost £120,606,500; services provided by the local authorities, £4,050,000; general medical and dental services, pharmaceutical and supplementary ophthalmic services, £56,072,500. Compensation for loss of right to sell practices is estimated to be £4,800,000, and central purchase of equipment to be £7,505,000.

Exhibition of Medical Photography

The Medical Group of the Royal Photographic Society of Great Britain has arranged an exhibition of medical photography to be held at the Royal Society of Medicine (1, Wimpole Street, London, W.) from May 24 to 29. Entries must be submitted by April 24. Further particulars may be obtained from the honorary secretary of the group at 16, Prince's Gate, London, S.W.7.

Whitley Council Machinery

It is proposed to set up nine functional councils and a general council, as well as a Scottish council for special conditions in Scotland. The proposed functional councils are as follows: medical, dental, pharmaceutical, optical, two for professional and technical staffs, one each for nurses and midwives, administrative and clerical, and ancillary staffs. They would deal with questions of remuneration and the conditions of employment of people within the functional group concerned. The general council would deal with problems affecting more than one functional group.

Medical Certification

A preliminary draft of medical certification arrangements under the National Insurance Act has been issued and submitted to the National Insurance Advisory Committee. The regulations provide for five incapacity certificates: (1) A first certificate, to be issued when the patient falls ill. (2) An intermediate certificate, to be issued within seven days of the first certificate. (3) A special intermediate certificate, to be issued after 28 days, if the incapacity is likely to continue for a long period. (4) An intermediate convalescent certificate, to be issued after 28 days when the patient will remain incapable of work until after a period of absence from home during convalescence. (5) A final certificate, to be issued when the patient is again fit for work. Two certificates to be given by a doctor or midwife are also described, noting details of when the woman may expect to be confined and when she was delivered.

Scottish Hospitals Excepted from the N.H.S.

The Department of Health for Scotland has notified Roman Catholic hospitals and institutions that they will not be required in the N.H.S. Contractual arrangements will be made between Regional Hospital Boards and institutions.

Public Opinion on the N.H.S.

In a "Gallup Poll" conducted by the *News Chronicle* to test public opinion, 61% considered that the new Health Service "is a good thing." Sixty-four per cent of those questioned said they had some idea what the dispute is about between Mr. Bevan and the B.M.A., and in reply to the question, "In the main would you say that your sympathy is with the doctors or against the doctors?" 30 of these said "with," 28 said "against," and 6 said "don't know."

Czech Medical Trade Union

Since the Communist coup in Czechoslovakia, the Czechoslovak Medical Association has been declared a trade union, according to *The Times* of March 8.

COMING EVENTS

Chesterfield Medal Examination

The Chesterfield Medal examination in dermatology will be held at St. John's Hospital for Diseases of the Skin, 5, Lisle Street, London, W.C., on Wednesday and Thursday, April 7 and 8, and Friday, April 16. The fee for candidates is £3 3s.

Medical Exhibition

The Southern Counties Medical Exhibition will be held at the Polygon Hotel, Southampton, on April 20 to 22. A number of well-known drug manufacturers are exhibiting, and some medical films will be shown each day in the afternoon.

Aslib

A study group on special librarianship will be held at the Library Association, Chaucer House, Malet Place, London, W.C.1, on April 13–17. Applications should be sent as soon as possible to Aslib, 52, Bloomsbury Street, London, W.C.1.

SOCIETIES AND LECTURES

Wednesday

INSTITUTE OF LARYNGOLOGY AND OTOLOGY, 330, Gray's Inn Road, London, W.C.—March 31, 11.30 a.m. *"Plastic Surgery,"* by Prof. T. Pomfret Kilner.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, London, W.—March 31, 3.30 p.m. *"The Home Nursing of Children,"* by Miss Dorothy A. Lane, R.S.C.N.

Thursday

ROYAL PHOTOGRAPHIC SOCIETY.—At 16, Prince's Gate, London, S.W., April 1, 7 p.m. Medical Film Evening.

ROYAL SANITARY INSTITUTE.—At Guildhall, Northampton, April 1, 10 a.m. *"Control of Infection in Day Schools,"* paper by Dr. C. M. Smith. *"The Water Supply of Northampton,"* paper by Dr. C. G. Payton.

Friday

KENT AND CANTERBURY HOSPITAL, Canterbury.—April 2, 5 p.m. Monthly clinical meeting.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.—At Leeds General Infirmary, April 2, 8.30 p.m. Annual meeting. *"Some Diseases of People,"* by Dr. T. Main.

WHIPPS CROSS HOSPITAL MEDICAL SOCIETY, Whipps Cross Hospital, London, E.—April 2, 8.30 p.m. *"The Modern Treatment of Venereal Diseases,"* by Dr. F. G. MacDonald.

APPOINTMENTS

Sir Alexander Fleming, F.R.S., and Sir John Boyd Orr, F.R.S., have been appointed members of the Scottish Council for Health Education.

HOLDERNESS, G. P., M.B., Ch.B., D.P.H., Full-time Medical Officer for New County Health Division of Aireborough, Horsforth, and Pudsey, Yorkshire.

LONDON COUNTY COUNCIL.—The following appointments in the Council's mental health services are announced at the hospitals indicated in parentheses. *Assistant Physicians:* H. R. Rollin, M.D., D.P.M. (Horton); A. S. Thorley, M.D., D.P.M. (Sutton).

MCNEIL, CHARLES, M.D., F.R.C.P., Emeritus Professor in Child Life and Health in the University of Edinburgh, has been elected to the Board of Managers of Edinburgh Royal Infirmary, in place of Dr. John Orr who has resigned.

PARKER, W. S., M.B., Ch.B., D.P.H., D.I.H., Medical Officer of Health, Cromer U.D.C., North Walsham U.D.C., Sheringham U.D.C., and Erpingham R.D.C., and Medical Officer, East Norfolk Joint Isolation Hospital.

THOMPSON, J. D., M.B., B.Ch., Director of Department of Physical Medicine, Redhill County Hospital, Edgware.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Ferguson.—On March 10, 1948, to Joan M. Ferguson (*née* Thornton), M.R.C.S., L.R.C.P., wife of Matthew Ferguson, of 17, Townsend Crescent, Kirkcaldy, Fife, a daughter.

Howkins.—On March 14, 1948, at 9, Lansdowne Road, Wimbledon, to Lena, wife of John Howkins, M.S., F.R.C.S., a daughter—Jane.

Raymond.—On March 7, 1948, at University College Hospital, to Dr. Joan Raymond, wife of Dr. Michael Raymond, a daughter.

Tate.—On March 13, 1948, at St. Mary's Nursing Home, Nottingham, to Betty (*née* Wilks), wife of Dr. Hugh Tate, M.B.E., a brother for Richard—Simon George.

MARRIAGES

Adam—Ross.—On March 12, 1948, at St. John's Episcopal Church, Forres, by the Rev. Canon Cecil Lake, T.D., J. C. Adam, T.D., M.B., Ch.B., Duncryne, Forres, to Elizabeth Ross, S.R.N., S.C.M., Ivy Cottage, Forres.

Arnott—Burt.—On Feb. 21, 1948, in London, David Charles Arnott, M.B., B.S., D.C.H., to Ruth Margaret Burt, M.R.C.S., L.R.C.P.

Pezeshgi—Jones.—On March 20, 1948, S. H. K. Pezeshgi, M.R.C.S., of Persian Embassy, to Audrey Elizabeth Jones, S.R.N., of Slindon, Sussex.

DEATHS

Hay.—On March 12, 1948, at University College Hospital, London, Malcolm Bell Hay, M.R.C.S., L.R.C.P., D.P.H., aged 71, late West African Medical Service.

Heywood.—On March 10, 1948, at Earnscliffe, Alderley Edge, near Manchester, Charles Christopher Heywood, M.B., B.Ch., M.R.C.P., aged 82.

Laird.—Recently, at 5, Neville Road, Rathgar, Dublin, Harry Seymour Laird, L.R.C.P.&S.I., and L.M., aged 77.

MacMillan.—On March 11, 1948, at Perth Royal Infirmary, Evan MacMillan, M.B., Ch.B.Ed.

Newbigging.—On March 8, 1948, at Holmfield, Lanark, Thomas Duncan Newbigging, M.B., C.M.

Oliver.—On March 6, 1948, at Malvern House, Marshfield, Richard Harris Oliver, F.R.C.S.I.

Pearse.—On March 5, 1948, at Rest Harrow, Uplyme, Lyme Regis, Arthur Stewart Joseph Pearse, M.B., B.Ch.

Prentice.—On Feb. 29, 1948, at Lusaka, Northern Rhodesia, George Prentice, L.R.C.P.&S.Ed., L.R.F.P.S.Glas.

Reid.—On March 10, 1948, at 53, Alnwickhill Road, Edinburgh, Edward Waymouth Reid, Sc.D., LL.D., M.B., F.R.S., late Professor of Physiology, University College, Dundee, St. Andrews University, aged 85.

Robertson.—On March 6, 1948, at Bridgefoot House, Thornton-le-Dale, Pickering, Yorks, Douglas Robertson, M.B., Ch.B., aged 49.

Stolterfoth.—On March 6, 1948, at Heather Cottage, Burghclere, Newbury, Berks, Charles Sigismund Stolterfoth, M.R.C.S., L.R.C.P.

Turle.—On March 6, 1948, at Duffield House, Bexhill, James Evan Turle, M.R.C.S., L.R.C.P., aged 70.

Young.—On March 12, 1948, at Glasgow, Roy Frew Young, M.C., LL.D., M.B., B.Ch., F.R.F.P.S.Glas., of 2, Park Quadrant, Glasgow.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Iron in Anaemia

Q.—*Are the various proprietary tablets of ferrous sulphate, manganese, etc., as effective as a mixture containing large doses of iron and ammonium citrate for the simple anaemia of women? Is the action of the iron reinforced by giving dilute hydrochloric acid before meals and a maintenance dose of vitamin C daily?*

A.—The only drug required in hypochromic anaemia is iron. There is no clinical justification for adding manganese or other substances, although some experimental work has suggested that the effect of iron may be enhanced in this manner. These experiments refer to animals, and there is no evidence that their results are applicable to man. Pills of ferrous sulphate are quite as effective as mixtures of iron ammonium citrate—9 gr. (0.585 g.) daily of the former is therapeutically equivalent to 90 gr. (5.85 g.) daily of the latter. Only ferrous iron is absorbed from the alimentary tract, and in the patient with achlorhydria conversion to the therapeutically inactive ferric ion takes place rapidly. It is possible that dilute hydrochloric acid may have some effect in preventing this, and thus in facilitating absorption; nevertheless there is little clinical evidence in support of this suggestion. Ascorbic acid may be valuable in this respect, by virtue of its reducing action: it has been shown that large doses of ascorbic acid (300–500 mg.) given at the same time as iron will lead to repair of anaemia in some instances where iron alone was ineffective. This seems to be due to maintenance of the ferrous state by the vitamin's reducing action, and can be duplicated with other reducing agents.

Quinine in Early Pregnancy

Q.—*Is there any evidence that quinine taken for the purpose of inducing abortion at about two months of pregnancy has a deleterious effect on the subsequent mental development of the child?*

A.—Quinine traverses the placenta in small amounts in late pregnancy, so early chorion may also be pervious to it. Although it is believed that large doses sometimes cause death of the foetus in late pregnancy or damage its auditory nerve, such possibilities have never been fully proved. There are reports of experimental work on birds and fish which go to show that quinine poisoning affects unfertilized ova and delays the development of fertilized ova, but it has not been demonstrated that the early human foetus is influenced when quinine is administered to the mother, at least not when therapeutic doses are used. Perhaps the best evidence is to be obtained from countries in which malaria is common and in which women in the early months of pregnancy often take even large doses of quinine to prevent or cure the disease. Most observers are agreed that this treatment has no significant ill effect on the children of such women. Even when abortion has occurred it would appear to be more often due to the malaria than to its treatment.

Sterilization of Eye Instruments

Q.—*Is the electric hot-air sterilizer suitable for the sterilization of eye instruments? If so, what temperatures and times are recommended? Does this method impair the delicate points and cutting edges of knives, needles, and the like?*

A.—The electric hot-air sterilizer is extensively used in French, German, and Scandinavian eye clinics, and can be recommended for the sterilization of eye instruments provided that: (*a*) they are conventionally cleaned before insertion; (*b*) they have no component liable to damage by heat—this debars cataract knives with ivory handles, irrigators with rubber tubing, diathermy electrodes insulated by rubber or varnish, and "Record" syringes in which the cement between metal and glass may be affected; (*c*) the sharp instruments are "racked" in a container which protects them from damage and contamination during stowage, removal, and storage; and (*d*) the temperature is adequately controlled by a thermostat and a thermometer or chemical temperature indicator close to or among the instruments during sterilization.

The temperature and time required for sterilization are interdependent, and various views have been expressed. Marchesani (Hamburg) claims that five minutes at 180° C. is adequate to kill all spores without corroding cataract knife blades. His special sterilizer with a built-in fan can pass from 15° to 180° C. and back in six minutes, making a total sterilizing time of eleven minutes. Moritz, on the other hand, aiming at a similar temperature in a sterilizer of older design, found a yellow tarnish on knife blades after five minutes. This suggests that the temperature (which varied by 30° C. in different parts of the oven) must in one portion have exceeded 200° C.—the critical temperature for steel. The converse has been recorded by Hanne, who found many hot-air sterilizers in Berlin ineffective, as portions of them remained below the sterilizing temperature. Holth advises 30 minutes at 160° C., which he claims does not affect the strength of silk sutures. His sterilizer takes several hours to reach a steady temperature before insertion of the instruments.

With the majority of ovens at present in use in Great Britain the standards recommended are those of the M.R.C. War Memo. (1945, No. 15) on the sterilization of hypodermic needles and all-glass syringes by hot air, which advises one hour at 160° C. This may take more than two hours in all, so that three cataract operations on the same morning will (unless the blunt instruments used are sterilized by boiling) require the previous sterilization of three complete sets of instruments. On the other hand, even repeated sterilization by this method leaves the edges and points of the finest instruments clinically and photomicrographically unimpaired—a great advantage in ophthalmic surgery.

Prolapsed Cervical Disk

Q.—*What are the symptoms, signs, and diagnostic criteria of a prolapsed cervical disk? How should it be treated? Is the prognosis good?*

A.—The clinical picture in cases of prolapsed cervical intervertebral disk is variable and depends not only upon the level of the disk affected but also upon the situation of the prolapse in relation to the midline. Thus where the prolapse occurs in or near the midline the spinal cord itself may be compressed, with symptoms of an upper motor neurone lesion below the level of the compression. On the other hand, when the prolapse is laterally placed, pressure may be exerted on a cervical nerve root, with symptoms related mainly to the distribution of the affected nerve. The nerve root compressed is always numerically the one immediately below the affected disk—e.g., prolapse of the fifth disk will compress the sixth nerve root, and prolapse of the sixth disk will compress the seventh nerve root. In practice it is found that a large proportion of the cases fall into two reasonably well-defined clinical groups, corresponding to lesions of the fifth and sixth cervical disks. Often, however, the clinical picture is ill defined and even vague.

Symptoms.—In a typical case the symptoms are related partly to the neck and partly to the arm. There may be a history of trauma—for instance, an awkward twisting movement of the neck. Pain is felt locally to one or other side of the spinous processes, and neck movements are painful and restricted. After an interval of hours or days the pain is felt to radiate downwards to the shoulder and arm. If the sixth nerve root is the one affected the radiation is down the outer border of the arm and forearm towards the dorsum of the thumb. In the case of the seventh nerve root the radiation is over the outer aspect of the shoulder and the posterior axillary fold, down the postero-lateral aspect of the arm and forearm to the wrist, sometimes extending to the index and middle fingers. The pain is not necessarily severe and may be more in the nature of uncomfortable paraesthesiae.

Signs.—In the cervical spine there is some degree of limitation of movement by pain, usually most pronounced on lateral flexion towards the affected side and on backward extension. Downward pressure on the head may cause pain radiating down

the arm. Head suspension, on the other hand, tends to relieve the pain. In the arm the signs depend upon the root affected. In the case of the sixth cervical root there may be weakness of the biceps muscle and diminution of the biceps-jerk. In the case of the seventh cervical root there may be weakness of the triceps and wrist extensors, with diminution of the triceps-jerk. There may be some blunting of sensation, but not complete anaesthesia, in the distribution of the affected root.

Diagnosis.—This is based on a careful consideration of the history and findings, and may be supported by radiological changes in the form of narrowing of one or other of the cervical disk spaces. Radiological examination also helps to exclude other causes of root symptoms. In occasional cases it may be desirable to seek more accurate information by means of contrast myelography. Somewhat similar symptoms may be produced by pressure on the cervical nerves after their exit from the bony column—e.g., by a cervical rib. Differential diagnosis is not always easy.

Treatment.—Initially, conservative measures should be tried. Minor degrees are often helped by physiotherapy. Occasionally a judicious manipulation of the cervical spine is useful and there is little risk of increasing the amount of prolapse if flexion movement is avoided. None the less, the risk should always be borne in mind when considering the advisability of manipulation, particularly under anaesthesia. Severer cases can be relieved by rest in bed, with traction of 5–10 lb. (2.27–4.54 kg.) applied via a halter. Within 10 to 14 days relief is sufficient to allow the patient to get up, but it is wise to apply a collar of moulded leather or plaster-of-Paris for the next six to eight weeks. It is rarely necessary to include the arm in the plaster. Only when the symptoms are severe and persistent or when disabling attacks occur should operative treatment be considered.

Prognosis is on the whole good. The great majority of cases clear up spontaneously within six to 12 weeks. Persistent or recurrent cases have been satisfactorily treated by operation.

(See also an annotation on this subject in the *Journal* of March 13 at p. 505 and the report of a discussion in our issue of March 20 at p. 557.)

Estimation of Bile Acids

Q.—*Is there any reliable test for estimating bile acids in the plasma or serum?*

A.—Several methods have been described, but the variation in their "normal range" suggests that they do not measure true bile-acid concentration. The most satisfactory appears to be that of Josephson (*Biochem. J.*, 1935, **29**, 1519), which was recently used by Sherlock and Walshe (*Clin. Sci.*, 1948, **6**, 223) in a thorough survey. The normal range is 0.2–3 mg. per 100 ml., and rises in obstructive jaundice to as high as 6.6 mg. per 100 ml. (as cholic acid), but the overlap between normal persons, patients with infective hepatitis, and patients with obstructive jaundice is so great that the results of the test are of no clinical value in the differential diagnosis of liver disease.

Penicillin Blood Levels

Q.—*In a moderately severe infection, with or without pyrexia, such as tonsillitis, furunculosis, or septic wounds, from which an organism as penicillin-sensitive as the Oxford staphylococcus has been cultured in the laboratory, what level of penicillin in the blood should be maintained, and for how long? The blood level is of course high immediately after parenteral administration, depending on the dose given. Does it necessarily follow that the raising of the blood level will shorten the duration of the infection, or must one be guided by the patient's condition before stopping penicillin?*

A.—The minimum concentration inhibiting the growth of such an organism is about 0.02 unit per ml. If this is continuously maintained or exceeded in the blood, it will also be maintained in the infected area of tissue. If adequate doses are given at reasonably short intervals, even though the blood level falls below this minimum before another dose is due, diffusion into the tissues while the level is high will ensure that local effect is maintained. How efficient this mechanism is must depend on the rate of exudation into the inflamed area and other factors. There is *in-vitro* evidence that somewhat higher concentrations are more rapidly bactericidal, but the range to which this statement applies is small, and above this no increase in concentration has any enhanced effect. There can be no arbitrary rules about the duration of treatment; the indications for stopping it are clinical signs or laboratory evidence that the infection has been overcome.

NOTES AND COMMENTS

Archives of Disease in Childhood.—The Editor of the *Medical Journal of Australia*, Dr. Mervyn Archdall, wishes to obtain copies of the March and June, 1944, issues of the *Archives of Disease in Childhood*, which are now out of print. Dr. Archdall's address is Seamer Street, Glebe, New South Wales, Australia.

Treatment of Chilblains.—Dr. W. H. MCKINSTRY (Rottingdean, Sussex) writes: Dr. R. John Gourlay (Feb. 21, p. 336) has discovered that nicotinic acid will cure chilblains. When I was in practice about 1896 I cured chilblains by giving cod-liver oil. This remedy was given by me as I found my patients taking cod-liver oil for other diseases, as phthisis, did not suffer from chilblains. Nicotinic acid at that time was unknown.

Vitamin B and Growth of Hair.—Dr. AGNES SAVILL (London, W.) writes: The subject of the effect of *p*-aminobenzoic acid on hair, especially on greying hair, was investigated by Benjamin Sieve and several other American writers many years ago. Sieve published the results on 460 patients in 1941. The drug became unobtainable during the war, as it was required for other purposes. Doubtless this explains why this research has been forgotten. In the third edition of *The Hair and Scalp* I have given references to all that I could trace on the subject. The reprint has taken over two years to appear, owing to the acute paper shortage from which all medical publishers have suffered.

Piercing the Ears.—Dr. H. MAITLAND MOIR (Currie, Midlothian) writes: The ring presented by the patient has a locking device. It is impossible to lead the one half of the ring through a straight piercing. After piercing the ear with a straight skin-needle, the two ends of the ring are placed in the "pierce," i.e., one behind and the other in front; then they are forced together and lock in the tissues. Before learning this trick I used to use a silk suture, which was effective if unsightly.

Cataract.—"Partial Eclipse" writes: Perhaps your inquirer on cataract ("Any Questions?" March 13, p. 531) may be interested in my own case. My left eye was operated on four years ago for cataract. Vision, when corrected with a strong lens, is 6/5 in that eye. Vision in right eye is P.L. only, owing to a mature cataract in that eye. I can read for hours without strain. The main drawbacks are: (1) The peripheral field is severely restricted. (2) Inability to judge distance. An object 9 feet distant appears to be only 6 feet away. (3) Objects are considerably magnified.

Some of the consequences of these drawbacks are more commonly felt out of doors. Movement on a pavement is generally punctuated by bumps on the right side from pedestrians who approach from my blind side. To cross a road carrying only light traffic I must wait at a crossing and then cross with the crowd. I can and do ride a push-cycle on quiet roads. When making a turn to the right I can sometimes manage to look over my left shoulder far enough to see traffic approaching from the rear, but I find it generally safer to dismount. I was desirous of taking up motor-cycling again, but decided that the risk was too great. It would be impossible for me now to drive a motor-car with safety anywhere outside the Sahara Desert, though before the onset of my cataract I had driven for many years.

A one-eyed man with a lens in his eye has many advantages over the individual who has to carry his lens on his nose.

Correction.—In the annotation under the heading of "Thirty-million Volt *X* Rays," published in the *Journal* of March 20 we referred to developments in the nuclear physics laboratories of the General Electric Company at Stafford. This was an error, and the reference should have been to the English Electric Company.

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